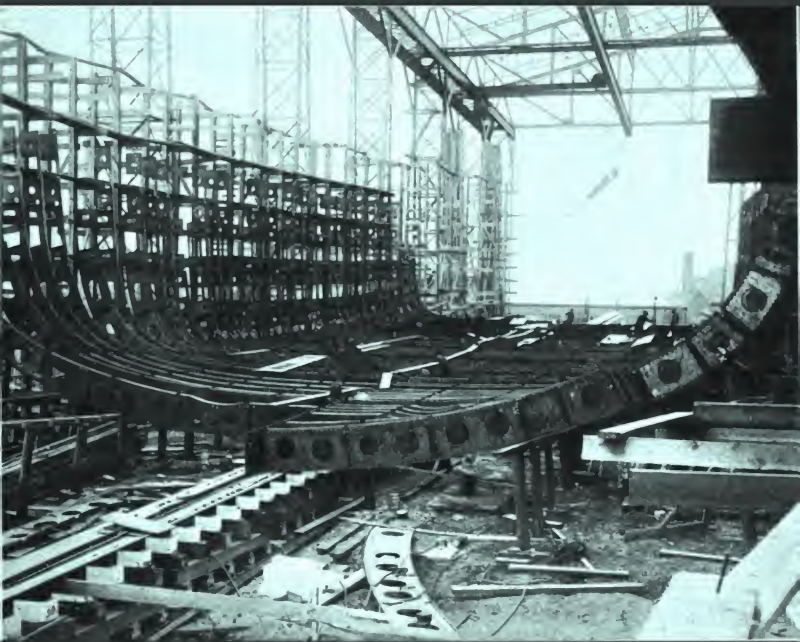




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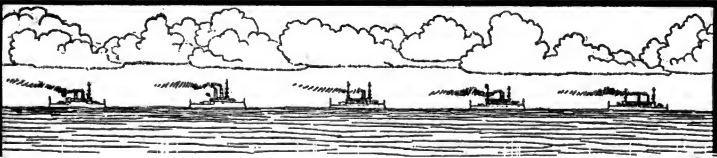
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THE NAVY

Vol. II

WASHINGTON, D.C., JANUARY, 1908

No. 1

NOTE AND COMMENT

THE daily press has, perhaps unwittingly, paid a decidedly left-handed compliment to the seamen of the Atlantic

"Compliments" to our Sailors

Fleet by making so much of their good behavior during the stay of the battleships at Port of Spain and Rio. Apparently it was a great surprise to our daily papers that the presence of our men on shore was not accompanied by riot and revolution. THE NAVY has always maintained that the seamen of our ships when they go ashore are quite as well behaved as the same number of young men from any other source; and that if they are compared, for instance, with the students of our great universities, the percentage of disorderly men in the service is much less than that in the colleges. THE NAVY calls attention to these reports of the daily press, not because it is at all surprised at the good behavior of our seamen or thinks the fact in itself worthy of special mention, but rather because the stories, as printed by the daily press, indicate an expectation that whenever United States sailors are ashore, trouble is likely to follow. It is little more complimentary to make a feature of the fact that our sailors were not disorderly than to say of a man that he went down town and did not steal anything; to point out that a certain thing did not happen is equivalent to saying that it was likely to happen, and probable. It would be much fairer to our warship crews not to dilate upon their good behavior; this is a thing that should be taken for granted.

THE change in the regulations as to the duties to which commanders of the navy can be assigned, should be of distinct value to the service. The new text, as approved by President Roosevelt, reads as follows:—

Opportunities for Commanders

"A Commander may command a division of a squadron, a naval station, a protected cruiser of the first rate, a ship of the second or third rate, a torpedo boat destroyer flotilla, or a ship not rated; be chief of staff to a flag officer; be assigned to duty as engineer of the fleet, and may serve as executive officer of a battleship or armored cruiser or perform such shore duty as may be assigned to him. Such Commanders as are by law restricted to the performance of engineering duties shall be assigned accordingly and to shore duty only."

Commanders are not eligible, except under an old civil war statute, to command first rate warships; and the

small number of second-class vessels has relegated to shore duty many commanders who could have been more profitably occupied in gaining further sea experience. Considering the advanced age of our captains, and the slight opportunity there has been for commanders to obtain experience in active sea duty during their time in that grade, it seems very desirable that as many commanders as possible should be on duty in the fleet, in positions which will give them the greatest possible personal familiarity with the behavior of big ships in general and the widest possible acquaintance with each of the separate ships in a fleet. The present commanders are the coming captains; and every additional bit of active training that they can have as commanders is so much gained for their efficiency when they become captains.

It is of interest that the Navy Department expects, some time or other, to test an aeroplane, with a view to making use of some sort of air navigating craft as a war-time auxiliary. In the way of using aeroplanes, kites, or balloons in naval operations we are considerably behind where we ought to be. France, Germany, and Italy have been experimenting with naval balloons for years past.

Italy has developed the naval balloon to the point of practical value. It is understood that a proposal to furnish a balloon for tests of this sort was made to the Department many months ago and that it was disapproved. Attention has already, in these pages, been called to the very successful use of a captive balloon in Italian naval maneuvers; and in this issue of THE NAVY will be found pictures illustrating the method of managing a balloon on board a small cruiser and giving views of a coast city and a squadron of warships as they appeared from the naval balloon. The practical usefulness of the balloon in naval operations is self-evident. Russia made good use of this method of getting a long-range view in connection with the operations of the Vladivostock squadron in the recent war; and if the Japanese had had an effective equipment of the same sort, their operations against Port Arthur might have been much simplified.

Italy has been as quick to borrow new devices as to

develop them for herself. It is interesting to know that within two months after the American fleet had successfully tested its wireless telephones, the Italian government ordered four sets of instruments to be installed on some of its warships.

GERMAN expectation, as outlined by one of our Berlin correspondents, that the three 19,200-ton battleships building for Brazil will find their way into the British navy is not at all unlikely of fulfillment. If the German program proceeds rapidly and English criticisms of the present British naval strength continue to be as sharp as they have been for the past few months, the purchase of the three Brazilian ships will doubtless relieve the British government of a considerable burden. By any impartial judgment, Britain's two-power standard appears to be fully met in her present navy. The addition of the three Brazilian ships, however, would appear to close the present debate as to whether or not that standard is fully met.

The Brazilian ships should be of special interest to this country, because of the disposition of their armor belt. It is reported, on exceptionally good authority, that these ships will carry a nine-inch armor belt about four meters wide (thirteen feet), and that a little more than half of this breadth of this belt (some seven feet) is intended to show above the water line. The full thickness of the belt is carried out to the bow and stern. As these ships are British designed, the disposition of the armor belt may reasonably be taken to represent the present judgment of British constructors as to the proper place of the water line belt.

At Portsmouth Dockyard, December 30, 1907, the British Admiralty began the construction of the *St. Vincent*, the first of a new series of improved

England's *Dreadnoughts* for the British navy. The *Dreadnought*

Dreadnought has a displacement of 17,250 tons, was laid down in October, 1905, and completed in October, 1906. Then came the *Temeraire* class of improved *Dreadnoughts*,—the *Temeraire*, *Bellerophon*, and *Superb*,—each of 18,600 tons displacement, which were laid down respectively in January, 1907, December, 1906, and February, 1907, and all will be completed by next January. Under this year's building program we have the *St. Vincent*—which is of 650 tons greater displacement than the *Temeraire* trio—and two more sister ships along improved *Dreadnought* lines. These latter are the *Collingwood*, the keel of which is about to be laid at Devonport, and the *Rodney*, the contract for which has just been let to the firm of Vickers, Sons and Maxim.

The *St. Vincent* class will, so far as can be ascertained, differ but slightly from the *Temeraires*, except in greater displacement and heavier armament. The *St. Vincent*, *Collingwood*, and *Rodney* will, however, carry a different gun, it being understood that they will each be armed with 13.5-inch guns 50 calibres long, and will steam 22 knots. The keel of the *Collingwood* is ready to be laid, and the slip where the vessel is to be built already presents a scene of great activity at Devonport, hundreds of tons of material having been transported to the slip and made ready to be placed in position. This practice has been observed for ten years in connection with the building of battleships at Devonport, but it is stated that the work has never before reached such an advanced stage prior to the "official commencement" of a ship at that yard. The particulars sent out by the Admiralty state that the *St. Vincent* ships are to be 500 feet long between perpendiculars, 84 feet beam, and that they will carry 50-calibre 12-inch guns, ten in number, arranged in five turrets; but there are recent intimations that these guns will be 13.5-inch ones when installed. The third of these battleships,—the *Rodney*,—which is to be constructed in the private yard of the Vickers, is the one which depended for her existence upon the failure of the disarmament project at The Hague. She is the first great battleship started in Europe since the closing of that Conference. The tenders received by the Admiralty for the construction of the *Rodney* were as follows: Vickers, Sons and Maxim, the successful bidders, £628,000; John Brown and Company, in Clydebank, £667,000; W. Beardmore and Co., Dalmuir, £704,000; Palmer Shipbuilding and Iron Co., Jarrow, £712,000; Fairfield Shipbuilding and Engineering Co., Glasgow, £734,000; Armstrong, Whitworth and Co., Newcastle, £738,000; and Scotts Shipbuilding and Engineering Co., £764,000 pounds sterling.

FOLLOWING closely upon the experiment with the *Hero*, the British Admiralty have given instructions for the battleship *Vengeance*, 12,950 tons, to carry out confidential experiments with a system of fire-control, the joint invention of a naval engineer and a civilian. About two years ago the battleship *Jupiter*, 14,900 tons, was engaged in experiments with this invention about four months. Improvements were made in the fittings as a result of the experience gained then, and subsequently the invention was fitted in the cruiser *Ariadne*. It has now been extended to the *Vengeance*, and, in addition to the *Ariadne*, the torpedo boat destroyers *Kale*, *Derwent*, *Doon*, and *Ribble* are to take part in the experiments.

British Fire-Control Experiments

JANUARY

THE NAVY

1908

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"THE NAVY" FOR 1908

THE NAVY enters upon its second year of publication, under new conditions, inasmuch as its former financial support has been withdrawn. It remains, however, under the same editorial management, and its policy is unchanged.

THE NAVY is glad to give full measure of praise to everything in our naval establishment which deserves praise. It shares the pride of all Americans in the energy, resourcefulness, and bravery of the personnel of the United States navy. But this personnel, unsurpassed in quality by that of any other navy in the world, ought to be supplied with the best possible war tools. It is because THE NAVY recognizes the fact that the tools given to our personnel are not the best and not up to the standard that American inventive mechanical skill is capable of reaching, that we have felt it a duty to the public, no less than to the personnel of the fleet, to print the facts in regard to defects in our warships and weaknesses in our system of naval administration.

The crying need of the naval service in this country is an alert and educated public opinion that shall keep watch of what is being done by the Navy Department and that shall be sufficiently well informed to know whether or not what is done is well done. That such intelligent and critical public opinion is necessary in order to have defects corrected is shown by the fact that the same defects have been built into our new ships for years past —

defects well known to the Navy Department and for years protested against by officers of the fleet.

THE NAVY has therefore published certain facts (well known to foreign admiralities, as to our own Service, but of which the people of the United States have little or no knowledge), in order to bring public opinion to bear on the Navy Department and to force the correction of such defects. That public opinion has weight and can force reforms is shown by the fact that, after THE NAVY forced publicity upon the Department last summer in connection with the Georgia accident, a tardy reform of a most serious defect, of which the Department had known for years, was undertaken. The same is true of our battle practice: it was not until THE NAVY showed that our fleet had had only ten hours of battle practice since the Spanish war, that our ships actually did carry out some ten days of valuable and novel training. The same is true of our fire-control systems: it was not until THE NAVY made public the fact that the fleet going to the Pacific was wholly unprovided with any efficient system that the Department ordered every ship to spend fifty days at a dockyard in order to have fire control installed.

HOW OFFICIAL FIGURES HIDE FACTS

Concealment of the true condition of our warships by the use of official figures is attempted in the second instalment of the article, "The Reuterdahl Attack on Our Navy Answered," in the Scientific American of January 27. The first instalment of this article, in the Scientific American of January 20, asserted that it was an entirely unbiased review of the actual facts; though it then proceeded to disclose its bias by practically reproducing, oftentimes word for word, the annual report of Chief Constructor Capps, even to the extent of duplicating the Constructor's reference to Janes' "Fighting Ships", — though in this case the Scientific American referred to the five-hundred-page naval manual as a "foreign paper." The second instalment of this article comes to us just as THE NAVY is going to press, and we have time and space, therefore, for only a brief comment on it, chiefly in regard to the position of the water-line armor belt.

Mr. Reuterdahl's perfectly accurate statement that "Of all our battleships not one shows the main armor belt

six inches above the water, when fully equipped and ready for sea," is denied. The Scientific American repeats the familiar official theory of the "normal" water line, and asserts that our ships show from eighteen inches to several feet of the main belt at maximum draught.

This is not true of the ships as they are. The theoretical maximum draught of the Connecticut, as calculated by our constructors beforehand, is 26 feet 9 inches. If the Connecticut never set lower in the water than this 26 feet 9 inches, she would show about eighteen inches of her armor belt above water. But the trouble with these figures is that the Connecticut has never been in such trim since her trial trip. When she led the fleet out of Hampton Roads on December 16 last, she drew nearly 29 feet of water. The writer made a close inspection of the ship on December 15 and was on a tug-boat within 300 yards of her, off her starboard bow, for a distance of several miles at the start of the voyage. The Connecticut's water line belt was completely under water from stem to stern. The red paint which covers the under-water part of this ship, and which extends on her and all the other vessels of the fleet to about a foot above the upper edge of the water line belt, was also hidden. The Connecticut's belt was therefore submerged to the extent of a full foot. Proof of this assertion will be found in the double page picture of the ship in this number of THE NAVY. This picture was taken on December 16, as the fleet left Hampton Roads. The large ship at the right-hand of the picture is the Connecticut, and every reader can see for himself that she shows only in three places a narrow line of the red paint above the armor belt,—this stretch of red paint above the belt being what is known in the fleet as "boot-topping." Examination of the other ships in this same picture will prove that on all of them the red under-water body was wholly covered by the sea,—which means that on every one of them the water-line belt was submerged.

The figures given by the Scientific American, therefore, do not represent the state of things as it actually exists in the fleet. They represent merely the expectations of the constructors; and it is because these figures have been put before the public as representing the facts—which they do not represent—that public opinion has been so wholly misled as to the actual conditions. Even such a generally

accepted authority as the Scientific American has fallen into the popular pit, and has published an article which we are compelled to believe it would not have admitted to its columns had it been as well acquainted with the facts as it is with the official figures.

The error into which the Scientific American has been led is perhaps particularly noticeable in the case of the Kentucky. The Scientific American presents a picture of the Kentucky at her normal draft of 23 feet 6 inches, when, according to official forecasts, she should show 3 feet 6 inches of her water-line belt above water. The statement is then made that the Kentucky at "full load draught" shows 19 inches of her belt; but, unfortunately for the figures, the Kentucky has never stopped at her official full load draught. When she closed the column of the Atlantic fleet on December 16 last, as we shall demonstrate by a photograph to be published in the February issue of THE NAVY, her actual full load draught was so great that her water-line belt was completely hidden. We have referred, in an earlier issue of THE NAVY, to the attempts made last winter to lighten the ships of the fleet by removing superfluous top hamper. It was found impossible to lighten the Kentucky sufficiently to make her show any substantial part of her armor belt above water.

If our ships, at their actual maximum draught, showed the extent of armor belt that the article in the Scientific American claims for them, there would be little room for criticism; but the fact is different. Our system of producing ships is so bad that they always draw much more water when fully loaded than they are expected to; and our Bureau system is so irresponsible, that, having made this mistake several times, it has the power of going on repeating the mistake, so that it may avoid confessing that it has made an error in its calculations. The official figures are interesting enough as showing what our constructors expected; but it is the ship, under service conditions, and not theoretical figures, that shows what is the fact.

Mr. Reuterdahl's strictures on the lowness of our broadside guns, are confirmed by the Scientific American's own words. The paper gives a diagram showing the height above the water, at normal draught, of the broadside guns of the Connecticut, in comparison with the battleships of the King Edward VII and Swiftsure

classes, and the *Drake* cruisers of the British navy. The Scientific American says that the *Connecticut's* guns, 15 feet above the water at normal draught, would be clear of the water in rough weather, "when the eight battleships of the *King Edward* class and the two battleships *Swiftsure* and *Triumph*, to say nothing of the four armored cruisers of the *Drake* class, would be rolling theirs under." The "normal draught" of the *Connecticut* is 24 feet 6 inches, and it is only at that draught—which she has not had since her trial trip—that her broadside guns are fifteen feet above the water. Her actual full load draught in service is 28 feet 8 inches, or more than four feet in excess of her "normal draught." At actual maximum draught, then, her broadside guns are not fifteen feet above water, but only eleven feet. Thus it will be seen that the Scientific American is more severe than even Mr. Reuter dahl; for if the *King Edward*, with her guns 12 feet 9 inches from the water, is going to roll the muzzles of those guns under water in rough weather, what will happen to the *Connecticut's* guns at her actual full load draught in service?

THE BROWNSON-RIXEY DISPUTE

The injustice of President Roosevelt's treatment of Rear Admiral Brownson, in regard to the appointment of a navy surgeon to command the hospital ship *Relief*, is brought into stronger light by the papers transmitted to the House on January 23, in response to the Gill resolution. The unfairness of the President's action, in publicly denouncing Rear Admiral Brownson, was so extraordinary as to leave even Mr. Roosevelt's staunchest friends no ground on which to defend him. From this beginning, the administration's treatment of the whole case has proceeded in a way that has alienated every fair-minded man.

Admiral Brownson made an admirable record as Chief of the Bureau of Navigation. It is well known within the Department that he was chosen for that position because of the President's personal liking for him and personal confidence in his judgment. Under the circumstances, Admiral Brownson was abundantly justified in resigning. He had been appointed for personal reasons, and when the President's approval had turned to disapproval, it

was inevitable that the Admiral should feel his continuance in the Bureau to be impossible.

The administration's conduct of the matter since Admiral Brownson resigned has been of one character throughout. The first breach of common fairness was in allowing Surgeon General Rixey to rush into print with an attack upon the Bureau of Navigation, while Admiral Brownson reserved the silence demanded by official etiquette. The requests of newspaper men for Admiral Brownson's letter of resignation were refused, with the statement that the matter was considered a "closed issue." Then the President's two letters addressed to Secretary Metcalf, in the first of which he made his attack upon Admiral Brownson, were given out. At the time these letters were made public at the White House, the newspaper correspondents asked again for Admiral Brownson's letter of resignation; and they made the same request of Secretary Metcalf, being refused in both cases. It was only after public sense of justice had been offended by the publication of the President's letters of January 2 and January 4 that Admiral Brownson's letter of resignation was given out, with the explanation that it had been "inadvertently omitted." How this omission could have been inadvertent, in the face of daily requests for the letter from newspaper correspondents, has not been explained.

The brevity of Admiral Brownson's letter of resignation raised the inference that he must have made some complete statement of his reasons for opposing the detail of a medical officer to command a ship. The newspaper men thereupon besieged the office of the Secretary of the Navy, but for several days were met with the intimation that no other documents in the case existed. All this time Admiral Brownson's memorandum, dated November 18, and addressed to the Secretary of the Navy, was upon the official files of the Department. Later, the Secretary admitted that a statement by Admiral Brownson was in existence; but it required the Gill resolution to bring it forth. Admiral Brownson's memorandum, with other facts bearing on the case, will be found in another part of this issue of THE NAVY.

But even in its response to the Gill Resolution, the Navy Department has continued to pursue a course which is the reverse of straightforward. The Gill Resolution

called for all documents, data, etc., on the official files relating to the resignation of Admiral Brownson and the appointment of Surgeon Stokes to command the *Relief*. As Admiral Brownson had resigned and could not longer put on the official files any statement of his side of the discussion, it was manifestly improper for the department to send to Congress a letter from Surgeon General Rixey, dated January 22,—the day before the material was sent to the house. Dr. Rixey's letter of January 22 is another step in the same direction; for he begins it with the surprising statement that "Admiral Brownson's written representations in regard to the hospital ship have just been brought to my attention," etc. In view of the previous conduct of the case, it passes understanding that Admiral Brownson's official memorandum of November 18 should have escaped Dr. Rixey's vigilance for more than two months.

The record as sent to the House is incomplete in several points of interest. Secretary Bonaparte's decision that a hospital ship, when commissioned during time of peace, should be commanded by a medical officer, was in the form of an endorsement, dated December 12, 1906, on the report and recommendations of the Joint Army and Navy Medical Board of February 17, 1906. The matter sent to the House includes nothing between December 12, 1906, and November 6, 1907. On this latter date, Dr. Rixey, in a letter to the Secretary of the Navy, asks for the commissioning of the *Relief* under the command of a medical officer. And in this letter to the Secretary occurs the following interesting paragraph, which, it seems to us, should lead the House to ask for further information. Dr. Rixey, says:—

"All the necessary arrangements for the commissioning of this ship have been considered by this Bureau in advance, and her stores are either on board or at the Navy Yard, Mare Island, in readiness to be placed on board at short notice."

Again, Admiral Brownson, in his memorandum, says:

"The experience gained with naval auxiliaries on board of which divided authority existed is fully set forth in the enclosed report from the Senior Squadron Commander of the Asiatic fleet, and has a direct bearing on the present point at issue."

Fairness would seem to demand that this report of the Senior Squadron Commander should have been sent to the House; but it was not sent.

As to the merits of the discussion, we imagine that Admiral Brownson's statement of reasons for opposing command of a hospital ship by a medical officer will appear sound and conclusive both to members of Congress and to the general public. His discussion of the mishaps which attended the navigation of the *Iris* and *Nanshan*, with civilian masters and crews, brings out clearly the irrepressible conflict between control by any naval officer whatsoever and the presence of a civilian sailing master subject to the shipping laws of the United States, which are at entire variance with the navy regulations. His application of the navy regulations and the navigation laws to the situation which would exist on board a hospital ship named as recommended by Surgeon General Rixey, makes clear the inevitable difficulties and confusion that would result from such a constitution of things.

But aside from questions of law and the navy regulations as they apply to this matter, Admiral Brownson's contention is powerfully supported by the endorsement of Rear Admiral George A. Converse on the report of the Medical Board. Admiral Converse, as chief of the Bureau of Navigation, opposed the recommendations of the Joint Medical Board, and in his endorsements he summarized the most vital objection to the scheme now advised, in the following words:—

"Finally, the military and other professional insight afforded the persons on board hospital ships, of the fleet operations, plans, bases, in time of peace and particularly so in time of war, might be used to our great injury and result most unfortunately for the success of our forces were such opportunities to gain military information made available to persons not of the naval service and not subject to its discipline, as would be the case were the personnel of hospital ships composed of civilians."

"POPULAR" BUGBEARS

"Popular" interpretation of international relations is made easy by the presence of a good and reliable bugbear. If you have somebody that you are always afraid of, it is easy to lay everything to his dark designs; and international relations especially can be adjusted to this single point of view with remarkable ease and with the certainty of reaching conclusions that are at least striking, even if they give no promise of being in the least

reliable. For a considerable number of years, Russia was the world's terror,—a great overgrown shaggy giant, prowling about the northern parts of Europe and Asia, infinite in number, and likely to descend upon an unwary universe and do the most astonishing things to it. We Americans varied our wonder at the latent power of Russia, with occasional scares over what Germany was on the point of doing to South America and the Monroe Doctrine.

Japan is now the bugbear. Since her great victories over Russia, we have discovered that the Japanese are a proud and fiery and warlike people, and we readily credit both the people and the government with the disposition to spend their last cent in sweeping in everything that adjoins them. As comparatively few of the present generation in this country have had any personal knowledge of a great war and what it means to the finances of a country, we find it easy to believe that Japan, with the huge foreign debt that she brought out of her victories over Russia, is even now on the verge of a struggle with the richest nation in the world. Having beaten Russia, she must naturally feel that she can "lick all creation" and must therefore be itching to undertake the task at the earliest possible moment. Out of this unfounded credulity grow such rumors as the recent one that Japan had sent a torpedo flotilla toward the strait of Magellan for the purpose of sinking our battleship fleet in that desolate region and thereby disabling us, so that the Mikado's big ships might gobble the Philippines, and deal a fatal blow to our interests in the Far East. The Japanese have a great talent for keeping things quiet when they don't want them to be known at large; but it would be difficult, if not impossible, for even Japan to detach any formidable portion of her fleet for a voyage of ten thousand miles across the Pacific, with the colliers and supply ships that must inevitably accompany such an expedition, without the fact being known immediately. Whatever other virtues they may have, Japanese torpedo boats cannot fly from Yokohama to the Horn; and the prosaic requirements of coal and food absolutely negative the possibility of such a wily expedition as has been rumored. The recent statement of the Japanese Minister of Marine in regard to the whereabouts of the Japanese fleet may be accepted as altogether conclusive.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

THE STRATEGY OF THE NORTH SEA

LONDON, January 4, 1908.

What is daily discussed in the journals as "the German menace" has brought about realization of the importance of guarding the North Sea shores of England and Scotland. Further than this, this important maritime frontier between the British Isles and the German Empire has developed into such wonderful strategic importance, as a result of the increasing development of the German navy, that the three neighboring naval powers of Great Britain, Germany, and France have been compelled by political considerations to seriously consider the realignment of old naval bases and the establishment of new strategic points.

The situation has become so important that every move on the chess-board of the North Sea is being closely observed and thoughtfully studied by the chancelleries and admiralties of Europe. England has well-developed naval bases and dockyards along the north shores of the English Channel in Portsmouth and Devonport, near Plymouth, but is singularly lacking in these important adjuncts along the North Sea coast north of Dover and Sheerness. The Admiralty cannot get away from the fact that between Dover and the north of Scotland there is only one dock capable of accommodating the *Dreadnought*, and this is Stephenson's dock at Hepburn-on-Tyne.

Across the North Sea from Hull lies Hamburg, only three hundred and seventy miles distant, on the River Elbe. North of Hamburg, at the eastern entrance to the Kiel Canal, which the German Reichstag has decided to widen and deepen at enormous expense, lies the increasingly important naval base of Kiel; and the other end of the Kiel Canal empties into the mouth of the Elbe not far from the new German naval base of Cuxhaven, which is to be developed into an important North Sea base for the German navy. Before the completion of the Kiel Canal, the naval interest of Germany centered along the shores of the Baltic. Since the cutting of that waterway, Germany has a short-cut to the North Sea. France and England are coming to a fuller appreciation of the significance of the decision to develop greatly the strength of the German Navy and of the Kaiser's insistence upon the enlargement of the Kiel waterway so as to afford ready means for the transfer of the imperial navy from the

Baltic to the North Sea. Corollary to all this, Germany has decided to make Emden, near Bremerhaven, a first-class torpedo flotilla base for her navy. It is already a secondary station, but in the future it will be the chief North Sea torpedo base. Cuxhaven is being made into the chief German base for the North Sea,—or, rather, the Germans are doing there what the British Admiralty might have done in the River Humber, near Hull. The resources of Kiel as an arsenal are being greatly increased and the port is to be provided with new docks, so that by 1909 it will be equipped for use as one of the principal bases for the German fleet.

France, too, should be "shaping" her naval policy more with regard to possibilities of a war with Germany than with England. There are some indications that our French neighbors are preparing to resist the colossal development of the navy of the trans-Rhenish Empire and to prevent the German fleet reaching the ocean through the Channel. This new shaping of French naval policy is adding to the importance of Cherbourg, because Brest is too far from the region of possible hostilities in the North Sea. A considerable scheme is in hand for improving the base at Cherbourg, comprising the construction of another basin, the creation of a new outer harbor, and various dockyard improvements.

What is the answer of the British Government? A great new naval base at Rosyth, on the shores of the North Sea, and the redistribution of the fleet so as to bring thirty-two battleships, sixteen armored cruisers, and fifty-four torpedo-boat destroyers, all fully manned, within easy striking distance of this important strategic region. Formal announcement of the decision of the Admiralty to proceed vigorously with the development of the new naval base at Rosyth, coupled with the statement that bids were about to be issued for the project, was made first by Lord Tweedmouth, the First Lord of the Admiralty, in a speech at a luncheon given him at Duns, Berwickshire, when he was presented with the honorary fellowship diploma of the Educational Institute of Scotland.

It was reported by one paper that, in replying to the toast "The Imperial Forces," he said that contracts had been taken for the construction of accommodation at Rosyth for 112 warships. This report was incorrect, and Lord Tweedmouth sent a correct version to the paper, and repeated this version in a speech at Chelmsford early in December, as follows:—

"They were now about issuing tenders for a new naval base in the Forth. There had been a long exploration of the Forth, and deep borings had been sunk to find out what the soil at the bottom of the Forth was like, and to

see how far they would have to go before they got a sound foundation. The naval basin would cover fifty-six acres, and would have a depth of thirty-six feet at all tides. They would have accommodation at the quays for twenty-two warships, and that number could be doubled by banking them two and two if it became necessary. There would also be a big dock that would take in the largest battleship of modern days. This would cost a great deal of money, and it would take ten years to complete, but it would be a most useful addition to the naval equipment of the country."

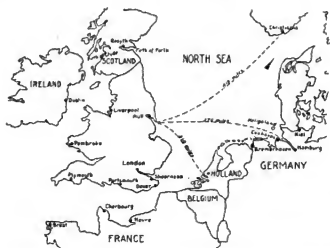
Lord Tweedmouth then admitted that from Portsmouth and Dover, right up the east coast of England and round the north of Scotland, there is no admiralty dock that will hold one of the big new battleships until they reach the Clyde; at Portsmouth and Devonport there were admiralty docks that would accommodate them; and in the Clyde, Severn, and Mersey, as well as at Belfast, there were private docks large enough for the *Dreadnought*; but that, on what he described as "this most attackable coast," there was neither a private nor a government dock that would dock that ship, except one private dock on the Tyne.

This authoritative announcement by the First Sea Lord is of great importance generally. With the redistribution of the fleet it makes clear to all the world that the Admiralty has recognized the changed conditions of sea power, particularly with regard to the North Sea. Discussing the situation and Lord Tweedmouth's announcement, one of our service contemporaries says:—

"If it were necessary to add any argument in favor of the establishment of a naval base at Rosyth to those already advanced, the fact of the changes contemplated at Heligoland would be of sufficient weight. But the fact is that the redistribution and enlargement of the Royal Navy and facilities for concentration in home waters have rendered the ordinary accommodation for peace purposes quite insufficient. The decision to add a fourth port to those of Portsmouth, Chatham, and Devonport was made in 1903, nearly five years ago, by Lord Selborne. It cannot be said that the Admiralty is in a hurry. The present idea is that the work should spread over a period of ten years. Never since the Norman Conquest, not even in the struggle with the Dutch, have we been forced to look for danger across the sea north of the Thames until now. But nothing has been done to secure our position therein. In 1898 Lord Goschen appointed a Committee to consider the whole question, its report having been presented to Parliament in 1902. It unanimously selected the Firth of Forth as the most advantageous strategic center for naval defense in the North Sea. Later on a site for a base was obtained at Rosyth. Both Mr. Balfour and Lord Selborne thus endorsed the policy of Lord Goschen. Last April, Mr. Robertson gave rise to hopes that the talking stage was at an end, and a 'fourth home

port' of the rank of Devonport, Portsmouth, and Chatham was to be created at once. Lord Tweedmouth now tells us that the Government has at last made up its mind. That is to say, nine years after the question was first raised, there is not a single facility for a fleet in war time between the Thames and the Clyde."

Rosyth stands in a little curved bay of the Firth of Forth, a few miles below Dunfermline and some two miles above the large bridge that spans the estuary. It is on the north shore of Perthshire, well protected by its position and the islands of the Forth, almost opposite Hopetoun, the seat of the Marquis of Linlithgow, while ancient Scottish homes like Dundas and Binns look down on its bay. In addition to the great basin of fifty-six acres,



Rosyth will have a dock of sufficient size for the biggest modern fighting ships. There will also be a lock eight hundred and fifty feet long, giving access to the large basin. This lock will be accessible at all stages of tide and will lead to the southwest corner of the basin with a depth of thirty-six feet. The basin or dock will be nearly square, the east quay sixteen hundred and twenty feet, the north quay fifteen hundred feet, the west quay twelve hundred feet, and the south quay one thousand feet. The southwest corner of this otherwise rectangular basin is to be cut off by a diagonal quay six hundred feet long, connecting the south and west sides of the dock. The total length of the quays will be about six thousand feet.

Dover was not at all pleased with the decision to make Rosyth a naval base, and the "Dover Express" contends that in comparing Rosyth with Dover it presents every disadvantage that can be imagined, pointing out that Rosyth is difficult of access, and that it would be difficult, in wartime, to get out of with an enemy at its entrance.

Advocates of Dover for the North Sea base assert that Rosyth is isolated from the other naval bases and farther from the German coast by over one hundred miles than Dover. However, Lord Tweedmouth thinks the new base has been chosen at the right place, because the Forth has splendid railway communication, food and water supply, and is close to the Leith and Granton shipbuilding facilities. In an emergency the best shipwrights and engineers could, it is claimed, be readily procured from the Clyde.

Since the announcement of the government's intentions was made by Lord Tweedmouth, there have been several indications that the Admiralty will push the scheme with increased activity. Colonel Exham, Superintendent Engineer of the Naval Works Department, is engaged completing preliminaries in connection with the Rosyth project. He has two engineers of the staff of his department associated with him and several others are to be transferred from Devonport to Rosyth. While there is complaint about the period of ten years announced by Lord Tweedmouth for the work, it is understood this delay is due to the decision to pay for the work out of current revenue, instead of from a government loan.

BRITISH-BRAZILIAN WARSHIPS

BERLIN, December 30, 1907.

Considerable excitement has been caused in naval circles here by a persistent rumor in regard to British naval expansion. Previous forecasts of the forthcoming British naval program have stated that only one or two battleships are contemplated, together with three or four light cruisers of an improved *Edgar* type and about six destroyers. But a bolt from the blue has effectually disturbed the complaisance with which the German Navy League regarded this unambitious increase in British sea-power. Your correspondent has learned from an authentic source that a strong belief has arisen that the two 21,000-ton battleships now building at Elswick and Barrow-in-Furness, ostensibly for Brazil, are really intended to eventually fly the White Ensign, a supposition borne out by several significant facts. These two vessels are to be armed with four 13.5-inch guns apiece, eight of which are in process of manufacture by Armstrong, Whitworth & Co., and it is well known that the British Admiralty has regarded this large-calibre weapon with considerable favor for some time past. Moreover, it appears somewhat improbable that a minor naval power such as Brazil actually intends to saddle herself with such leviathans, in view of the fact that her present naval forces are wholly adequate to protect her interests against any probable

aggressor. An additional element of probability is added to the theory by the recollection of Great Britain's purchase from Chili of the *Triumph* and *Swiftsure* battleships in December, 1903. The only real negative argument is contained in the report that reciprocating engines will be installed in the two big ships, this being at variance with the British Admiralty's determination to continue the sole use of turbines in large craft at least. But it is quite possible that turbines are actually contemplated for the two battleships in question.

Up to the present this rumor has only circulated amongst a limited number of the best-informed naval authorities in Berlin, who entertain but little doubt of its accuracy. On the face of it the supposition is by no means fantastic, but Great Britain's method of thus using South American States as catspaws evokes much indignation here. One result of the affair will doubtless be a renewal of the Navy League agitation for even more extensive building plans than those just authorized by the Reichstag. Count Reventlow, the eminent authority on naval matters and a prominent member of the League, is understood to be preparing a digest of the matter, to be laid before a special meeting of the League, with a view to urging upon the Government the necessity of more battleships as an offset against this latest move by England.

GERMANY'S STRONG NAVAL PROGRAM

BERLIN, January 1, 1908.

There has been no stage of international politics when the Imperial German government has not regarded proposals for mutual disarmament as Utopian. While other nations may have been misled by the visionary projects of "apostles of peace", the Berlin government, under the strong guidance of the Kaiser, has never for a moment entertained seriously the belief that the Hague Conference of 1907 would accomplish the sheathing of the sword. Germany was as willing as any other power to ameliorate the horrors of war and to establish rules limiting the scope of questions to be settled by other than peaceful means; but our people are scientific and practical, and believe thoroughly in the doctrine that preparation for war, in the fullest sense, is the best guarantee for peace.

Across the Channel there is much talk about the "German menace" and about the new German program being a "sad blow for lovers of peace". The attitude of the German government is inspired simply by a desire to feel secure. Berlin does not desire to menace the peace of the world, but wishes to be fully prepared whenever the

conflict comes. Everywhere except in France there is great naval development. Whatever the complaint of the Briton about the failure of his Admiralty to maintain the so-called two-power standard, it is an unmistakable fact that the British navy, with one *Dreadnought* in commission, three others completing, and another trio being laid down, is increasing its strength by leaps and bounds. The development of the German navy and the strengthening of the North Sea bases is no more a menace to Great Britain than the concentration of the British fighting strength in home waters, especially around the North Sea coasts, is to our country. If Germany is progressing to the point where she may aim a strong blow toward Great Britain, it may also be said that Great Britain is already prepared to strike quickly at Germany.

German relations with Great Britain have improved. The two governments were never on more friendly terms. The rapid growth of the German navy is not so much a menace to the British Empire as it is to the continued predominance of the superiority of the British navy. The British two-power standard is threatened, and the question for the two governments to settle is whether German economics and finances can stand the development of the greater German navy better than those of Great Britain can stand the strain of trying to continue the two-power standard.

The Naval Program before the Reichstag has been received favorably by all parties except the Social Democrats. It shows that the German Navy Act of 1900, providing for a permanent building program, is to be radically changed. The draft of the new clause is intended to take the place of the permanent building clause in the 1900 Act, has been sanctioned by the Bundesrath, and will undoubtedly be approved by the Reichstag. A memorandum attached to the Estimates, which give the revised Expenditure Table for 1908-17, shows that the Law of 1900 has been changed in only one particular,—and that a very important one, containing the essence of the new project,—the reduction of the life of all armored ships from twenty-five to twenty years, counting from the date on which was voted the first installment on which the initial credit for the building of the substitute ship is endorsed.

The decision of the Imperial authorities to accept the principle that armored ships are obsolete at the age of twenty years is important. It is held that when the ships to be "replaced" are really withdrawn, they are actually thirty years old, counting from the period of payment of first installments to the actual completion of

the vessel built in substitution. Naval experts of other countries are practically unanimous in holding that twenty years is the real limit of usefulness for a modern fighting ship. The decision to declare vessels obsolete five years earlier does not increase the number of warships to be constructed under the Navy Act of 1890,—fifty-eight capital ships, of which thirty-eight are to be battleships and twenty large armored cruisers. It does bring about alterations of an important character in the program now extending to 1917, and means that at least four more battleships than have heretofore been authorized by the Reichstag will be laid down between 1908 and 1912, and that two battleships instead of one may have to be laid down in each of the four years ending with 1916. The adoption of this project would give the German navy thirty-eight battleships in 1915.

Under the new program seventeen German battleships will be replaced in the period from 1908 to 1917; three each in 1908, 1909, and 1910; two in 1911; and one each year from 1912 to 1917. Six large cruisers would be replaced in successive years; while nineteen small cruisers would be replaced, two each year from 1908 to 1916, inclusive, and one in 1917. In addition to the ships thus replaced, there will be four new armored cruisers of the British *Invincible* class built between 1908 and 1912, one each year, under the original Navy Act of 1900.

The German program for 1908 is three *Dreadnoughts*, one *Invincible*, two small cruisers of 24.5 knots, and twelve large destroyers, the latter constituting two "half" flotillas. This program is to be repeated in 1909 and 1910. The building program during the period 1908-1917 will, therefore, be as follows:—

- 3 battleships of *Dreadnought* improved class to be built each year in 1908-9-10.
- 2 battleships of *Dreadnought* improved class to be built in 1911.
- 1 battleship of *Dreadnought* improved class to be built each year from 1912 to 1917.
- 1 armored cruiser each year from 1908 to 1917 including six to be replaced.
- 2 scouting cruisers each year from 1908 to 1916.
- 1 scouting cruiser in 1917.
- 12 large-sized destroyers each year in 1908-9-10-11.

Total built after 1907: Seventeen battleships and ten armored cruisers, making twenty-seven ships of the line; in addition to nineteen scouting cruisers and forty-eight destroyers, to say nothing of destroyers to be built after 1911.

Colonel Gädke, in the "Berliner Tageblatt," estimates that by 1914 the German navy will consist of thirty-seven battleships and fourteen large cruisers "in commission."

Of these, thirteen battleships will be of 19,000 and more tons displacement; ten of 13,200 tons; ten of over 11,000 tons, and four of 10,000 tons. There will be five large cruisers of 18,000 tons at least, one of 15,000 tons, two of 11,500 tons, one of 10,500 tons, and five of 9,000 and 8,500 tons. The total tonnage of the fleet would amount to 700,000 tons, or more than double its present figure of 320,000 tons. By 1920 the rate of construction would bring the strength of the navy up to the required number of thirty-eight battleships and twenty large cruisers, of which twenty battleships and twelve cruisers would be of the large class, all in commission.

There are now twenty German battleships classed as effective in commission. The *Ersatz Baden*, *Ersatz Württemberg*, *Ersatz Bayern*, and *Ersatz Sachsen* are to be ready by 1910. In 1920, under the proposed project, our high sea fleet would consist of twenty-four battleships of the *Dreadnought* class, ranging from 19,000 tons to over 20,000 tons; ten of the *Deutschland* and *Braunschweig* classes of 13,200 tons each, and four ships of the *Wittelsbach* class of 11,800 tons, not one of which would be over nineteen years of age.

The total amount of the navy estimates for 1908 is \$81,567,943.17, divided into non-recurring expenditures, ordinary expenditures, and ordinary non-recurring expenditures. There are provisions for strengthening the coast defenses, for the construction of docks on the river Elbe, reinforcement of the personnel, the construction of new training ships, and a considerable outlay for submarines. The largest non-recurring expenditure will be upon new construction. There will be first installments required for three new battleships, an armored cruiser, two small cruisers, a river gunboat for China, and a flotilla of twelve destroyers. There are estimates for structural changes in battleships of the *Kaiser* class, increased ammunition for ships and forts, reserve guns, and the extraordinary items provide for extensions and improvements at Kiel and Wilhelmshaven and a turbine factory at Kiel. There is a large grant to aid Count Zeppelin for his airship experiments, and another large item for the widening of the Kiel Canal. Heligoland is being strengthened, and diplomatic movements are on foot to obtain certain important naval bases. The memoranda attached to the Estimates set down large sums for armaments, pointing out that the navies of the other powers are working constantly to perfect their ordnance and torpedoes and our navy cannot lag behind. The Estimates also fix the navy personnel for 1908 at 50,323 officers and men—an increase of 3,576 over last year.

DISARMAMENT THROUGH INDIFFERENCE

PARIS, January 9, 1908.

The attitude of the French Senate towards the navy is apparently one of negation. The American Navy has taken second place, through numerous recent additions of fighting units to the fleet. The French Navy has been thrust out of second place, fallen back into third place; and those who thoughtfully observe this set-back in actual military power are wondering whether the weakening of national purpose will cause France to drop back into fourth place among the principal navies of the world.

Our German neighbors across the Rhine are actively developing their naval armament, and even aspire to oust the United States Navy from the latter's position next to England on the charts recording the strength of the world's fighting fleets. Other Governments are acting upon the theory that universal peace is very distant; and since the fiasco of disarmament at The Hague, plans for the augmentation of armament have progressed rather rapidly before every important Government but France. Germany is seriously preparing for the construction of seventeen battleships, six armored cruisers, and nineteen smaller cruisers within the next decade. This colossal German program has set the British Admiralty thinking. The United States and Japan propose important fleet increases. Russia and Spain propose to rebuild their navies. Italy and Brazil show signs of full recognition of the activities of other nations toward armament. But France is confronted with Senators and Deputies who fail to rally round Minister of Marine Thompson.

Since the Spanish-American War, France has launched but nine battleships, ranging from 11,800 to 14,630 tons, and the *Henri IV* of scarcely more than 8,000 tons. The latter is classed as obsolescent. Another, the *Tena*, has been wrecked by internal explosion; and four others, the *Democratique*, *Liberte*, *Justice*, and *Verite*, have not taken their armament aboard and are, therefore, not ready for sea. During the same ten years elapsing since the war over Cuba, England has launched thirty-four battleships each having a displacement of over 12,050 tons, including four *Dreadnoughts* ranging from 17,900 to 18,500 tons. All but five of these thirty-four additions to the British Navy are in active sea service, and the two *Lord Nelsons* will soon be in service. The United States has launched in the same period twenty-one battleships, ranging from the *Alabama* class of 11,000 tons to the 16,000-ton *New Hampshire*, and all but three of these are completed, while the three exceptions are more than nine-tenths completed. Germany has launched eighteen battleships, ranging from

11,000 tons to 13,200 tons, in the same decade, and all but two—the *Schliesen* and *Schleswig-Holstein*—are completed.

While the French Navy is now generally rated as third in sea strength, it really ranks but fourth in the number and effectiveness of the vessels launched and completed since 1898. Scarcely more than four of these are now complete enough to be ready for instantaneous action. In spite of the exhortations of Minister Thompson, and of only a few others outside of the Navy, France seems willing to close her eyes upon the situation; and M. Messing, the Reporter of the War Budget, has declared that "France will not seek to surpass her neighbors if they persist in the ruinous policy of armaments a outrance." This is an appeal to the acceptance of the inevitable, and means that France must "pay the piper" if the Republic deliberately refrains from investing in naval insurance against national danger. The Chamber of Deputies has seemingly acted upon the theory that the results of The Hague Conference have strengthened the peace of the world, and that strong armament is contrary to national economy. It remains to be seen whether the French Chamber will fall into line with the Deputies or heed the appeals of the Minister of Marine.

Negative legislation is not the only blight upon the French Navy. Military indecision has baffled the Ministry. Minister Thompson is sincerely anxious to develop and enlarge the French fleet, but has been perplexed rather sorely by the difficulties which have been experienced by the military element in its efforts to arrive at a definite decision over the character of the armament proposed for the new ships and other important questions of policy. The French Superior Council of the Navy considered not less than six widely different plans of armament for these future battleships. There was an all-big-gun project and various plans for mixed armament. While other naval powers have gone ahead developing plans for single-calibre ships, the French Superior Council has proposed a mixed armament of six 12-inch, eight 9.4-inch, and eighteen 3.9-inch guns. Discussing the proposition of the Council, the assertion is made by M. Pierrevé, in the semi-official "Moniteur de la Flotte," that the compromise "solution" thus reached is the only one which it believed it possible for the Council to adopt. He points out that the proposition of two calibres of heavy guns is equivalent to the substitution of two 12-inch guns, and four 9.4-inch guns, in a vessel of the *Danton* class at a cost of some three thousand tons additional weight in displacement. "It is essential," he declares, "that the reasons should be explained by which the duality in the

calibre of the heavy gun has been determined by the Council. Either the advantage of unity of calibre must be disputed or greater inconvenience must be demonstrated."

The system under which plans are made for new French vessels is very elaborate. The program of new construction is prepared by the Superior Council, which consists of the prefects of the five naval ports, four admirals employed in the central administration, and the chief of staff, who constantly supervises the plans in the genesis and during their progress through the various committees. The Superior Council indicates the general type and the number of vessels to be put in hand, as well as all matters pertaining to the distribution and employment of the fleet. In regard to ship plans, the General Staff, consulting with officers in the departments of construction, ordnance, and electricity, prepares a sketch plan for each of the types indicated by the Superior Council. These sketches are submitted for examination to the technical branch of the naval construction department, composed of members of the genie maritime and an ordnance officer. The design takes shape in this branch, and principal characteristics, such as displacement, armor protection, armament, propulsion, and range of action, are determined. After that the plans go to the technical committee, which was created by Minister Thompson and is headed by a vice admiral, who presides over a group of senior and junior officers of the navy, engineers, constructors, and several officers of colonial artillery. This committee, after deliberating with the Chief of Staff, studies, analyzes, and either adopts or modifies the plans, which then go back to the technical branch of the construction department for completion. The plans go back once more to the technical committee for final approval, and are then submitted, with the recommendations and comment of that committee, to the Minister of Marine.

After being thus considered, the six plans for future French battleships were this year reduced by the Superior Council to the single plan for mixed armaments, but it is not certain of adoption. Minister Thompson went on record to this effect before the French Senate. The majority of French naval officers favor unity of calibres, and the Minister of Marine has informed the Senate that the French Senators and Deputies will be given an opportunity of determining the character of the armament, several single calibre plans—Plan A calling for ships carrying twelve 12-inch, and Plan B proposing sixteen 10.8-inch guns—having been prepared for the purpose of selection.

In his report to the French Chamber of Deputies, M.

Chaumet, who had charge of the preparation of the French Naval Budget, discussed the naval situation at some length. The following sentences are taken from an abstract of that report:—

"The relations between the different countries are of too variable a nature to make it possible to constitute a fleet with a view to fight any particular eventual enemy. Torpedo-boats and submarines are required because of their military value, and not by reason of so-called economy, seeing that their construction and armament are proportionately more costly than those of larger units. . . . After the construction of a ship has been decided, it should be possible to give to the naval arsenal, within six months at most, all the required data to allow the latter to place contracts for all material and machinery. . . . It is not proposed that the Government yards should be done away with; for besides their military character, they should also play a part in economics. They are, however, far from exercising such a beneficial action, for they are too numerous, badly equipped, and badly organized. They should, to say the least, be specialized, and the heavy battleships built at Brest and Lorient, the smaller craft being built and kept up at Rochefort and Cherbourg, Toulon forming the repairing yard for the maintenance of the Mediterranean squadron. Bizerta might be set apart also for the latter squadron. . . . French naval artillery does not appear to be inferior to British. In the case of the 12-inch calibre the muzzle velocity of French guns has always been higher than that of the British guns. But the French guns, on the other hand, are less satisfactory in the matter of rapid firing, this being due mainly to defective installations on board French ships; and these defective installations are a consequence of red-tapeism, which entrusts several departments with the organization of work in which unity of views and co-ordination of efforts should form an indispensable factor. . . . The conditions for the testing of projectiles have been rendered more stringent. New systems of priming are being devised. For firing in times of peace, and for sake of economy, cast-iron projectiles are maintained in use. For use in war-time steel projectiles will be resorted to exclusively. It has been decided, at last, to unify these projectiles and to replace the armor-piercing and semi-armor piercing by one single type,—much heavier than the former types,—which, besides having a higher performing power, will carry a greater explosive charge. A projectile with a high capacity for explosives is also being designed for firing under the same conditions, as regards velocity and pressure, as the regulation projectiles."

THE BOMBARDMENT OF THE *HERO*

When the old battleships bring such small return under the auctioneer's hammer it is certainly surprising—in view of the success attending the gun-fire attack upon the *Hero*—that more of these obsolete craft are not devoted to various kinds of experiment by the Admiralties of the world. When such ships are sold to junk dealers to be broken into scrap-steel, only a modicum of money is received. But, when governments are wise enough and strong enough to order old ships to destruction on the altar of naval science, the results obtained must always more than remunerate the nation for the loss of the vessel.

There are hundreds of things that we do not yet know about the effect of modern gun-fire. In spite of the complete revolution in naval ordnance and the extremely valuable lessons learnt in battle target practice such as now obtains in the American and British navies, there are numerous unknown elements that can be determined only by actual experiment, under service conditions as nearly as possible identical with those obtaining in a naval war. There are many studies to be made of the effect of modern gun-fire upon both materiel and personnel,—the efficacy of fire-control apparatus above the protective deck of a modern *Dreadnought*, the relation of electrical fittings within and without turrets to the explosions of an enemy's shells,—and many of these lessons can be studied properly only under simulated war conditions. The real test of these things is their subjection to gun-fire.

The British Admiralty selected the obsolete second-class battleship *Hero* as a target for experimental firing exercises by the modern first-class battleships *Hibernia* and *Dominion* of the Channel Fleet. The Admiralty wanted information concerning the effect of high explosive lyddite shells upon the delicate electrical instruments connected with the fire-control equipment of an up-to-date battleship. For this purpose a complete installation of electrical fire-control instruments of the standard Admiralty type was made on board the *Hero*; in addition, there were loud-sounding telephones such as are used in all British ships, and "dummy" men of wood were placed aboard the ship at all positions where, in actual combat,

officers and men would be stationed. While it was the intention of the Admiralty to keep the results of the firing strictly confidential, enough has been learned to demonstrate that the test was a complete success, so far as the development of valuable results is concerned.

The bombardment of the *Hero* was not ordered so much to ascertain the effect of modern gun-fire on armor as upon highly developed fire-control systems, yet, incidentally, it was ascertained that the armor of two decades ago gave a good account of itself, although not designed for such terrific hammering as that delivered in the lyddite blows from the big guns of the *Hibernia* class.

THE TARGET

Built in 1888, the *Hero* carried fairly modern compound armor, comprising 12-inch plates on her water-line, 12 inches on the turret containing the main armament of two 12-inch guns, and 11½ inches on the bulkhead. The armor belt tapered from a maximum of 12 inches at the water-line to 8½ inches, and extended to within six fathoms of the stern. The turret of the *Hero* at the level of the fore-castle deck was placed at the low elevation of not more than ten feet above sea level, and from about midships to the stern the freeboard was raised by the height of one deck, increasing the maximum freeboard to about sixteen feet at this end of the ship. She had a single smokestack, in front of which, below the bridge, was a conning tower, and astern of the stack was the one mast carried by the ship. A dummy fire-control platform was rigged up at the proper height upon the mast, and the hull of the ship was painted off with white lines into separate sections, all duly numbered and lettered, in designation of the modern instruments and appliances of a vital character to be found behind them.

WHEN THE CHANNEL FLEET PASSED

The firing experiments with the *Hero* were conducted at the Kentish Knock, off the Kentish Coast, in the vicinity of Sheerness, on Friday and Saturday, November 28 and 29. Admiral Sir G. H. U. Noel, Commander-in-Chief of the Nore, went from Chatham in the special

service vessel *Undine* to witness them. The cruiser *Topaze* and the despatch vessel *Surprise* took a number of officers from Sheerness to view the firing, including Rear Admiral F. T. Hamilton, Inspector of Target Practice; Captain R. H. S. Bacon, D.S.O., Director of Naval Ordnance and Torpedoes; the officers commanding gunnery establishments at home ports, and members of the Ordnance Committee. Lord Charles Beresford was present, with ships of the Channel Fleet. The *Hero* was moored in an east and west direction, so that she presented her full broadside to the attacking ships. The battleship squadron steamed past the ship very slowly, closing up to 6000 and 8000 yards for the bombardment.

The *King Edward VII*, serving as the flagship of Lord Charles Beresford, led, followed by the rest of the ships in pairs. These were the *Hibernia*, flagship of Vice Admiral Sir R. Custance; the *Illustrious*, flagship of Rear Admiral Foley; the *Dominion*, *Ocean*, *Jupiter*, and *Vengeance*, all of the Channel Fleet. The firing ships were the *Hibernia* and the *Dominion*, two of the finest ships in the British Navy, both belonging to the *King Edward VII* class. The *Dominion* was launched in 1903; the *Hibernia* in 1905. Their displacement is 16,500 tons each, making them the heaviest class afloat in the British Navy, next to the 17,900-ton *Dreadnought*. Each of the two firing ships is armed with four 12-inch, four 9.2-inch, and ten 6-inch guns, which were used in the tests. They did their work so well that the *Hero* is practically a wreck, with her mast and funnel shot away. At the conclusion of the firing, Lord Charles Beresford signalled to the *Dominion* and *Hibernia* that their brilliant shooting reflected great credit upon all concerned in the experiments.

EFFECT OF GUN-FIRE UPON FIRE-CONTROL

While the Admiralty's deductions are to be withheld from publication, any one in England may, with a boat, roam all about the helpless hulk of the *Hero* near Kentish Knock. The effects of the gun-fire upon the exterior of the ship are plainly apparent, and good photographs of the *Hero* have been shown in nearly all of the London illustrated papers. The wrecked interior of the *Hero* cannot be seen by outsiders; but the effect of the gun-fire of the *Dominion* and *Hibernia* upon every part of the British fire-control system, above the protective deck, is understood to have been disastrous. A 6-inch shell burst in the improvised fire-control top on the mast and carried away the range-finding station, in the very beginning of

this simulative combat. The quickness with which this was done has been discussed a great deal in British gunnery circles, but too much emphasis seems to have been placed upon this feature of the test by the daily journals.

For instance, a special correspondent of the London Daily Mail and Express said, in connection with his description of the *Hero* experiment: "There was a hole through the funnel; but, most significant and important of all, a splinter of shell—not a direct hit—had gone through the mast, and, although this still stood, it had severed every control wire in it. Thus was the most urgent problem of the trials solved in the first two minutes. Would the modern system of fire-control withstand for long the attentions of a straight hitting enemy? Here was a ship fitted with the control apparatus, whose maintenance is absolutely essential during battle, and here were ships which hit their target once in every four rounds; and the whole fire-control system had been reduced to impotence in two minutes."

The most advanced gunnery men do not pretend to claim that the fire-control station in the mast is invulnerable. With any sort of good shooting maintained reasonably long enough, masts, stacks, and other super-deck attachments are bound to go early in an engagement. Neither the range-finding instruments in the mast-station, nor the wires and voice pipes within the mast, are regarded as permanent. Advanced ordnance students consider the mast-control appliances only as adjuncts to the real system of fire-control below the protective decks.

VALUE OF THE INITIAL ADVANTAGE

The value of the devices in the masts must be demonstrated within the opening moments of an engagement. With the *Britannia* making four hits a minute, the result might have been entirely different if the *Hero* had been returning the fire at the rate of eight hits a minute; and, if the former ship recorded three misses to every hit, she might very easily have been placed *hors de combat* if antagonized by a vessel scoring from 50 to 75 per cent of hits in the very beginning of an engagement. The fire-control station in the mast has this very end in view, and, if it can be accomplished the loss of the mast a little later is considered well compensated for.

The mission of the range-finders high in the air is to pick up the fighting range for the gunners and to do it quickly. The golden rule of modern gunnery is to hit your enemy first, hit him hard, and hit him as often as

you can as soon as you can. The first shots are usually fired at the longer ranges. The facility with which the range can be accurately determined depends largely upon the man in the mast. If he does his work well at the very beginning of the combat he becomes an important factor. If the mast, which is expected to be shot away, is fortunate enough to continue standing, so much the better.

The initial advantage went a long way with the Japanese at the battle of Tsushima. They concentrated their fire upon the *Souvaroff*, Admiral Rojestvensky's flagship, in the very beginning; and, according to Semenov, who was a Russian naval observer on board the flagship, both the fighting mast and the steering gear of the *Souvaroff* were shot away at once. This interfered both with the navigation of the ship and the display of signals. In an attack like that upon the *Hero*, allowance must be made for the fact that, in the nature of things, she could not reply to the fire of the Channel Fleet ships. But aside from this, the test resembled warfare as nearly as any experiment can without the actual killing of man.

FIRST SIX SHOTS WERE ALL MISSES

One witness says in description of the *Hero* experiment: "The first six shots were all misses, and although sparks began to fly from the *Hero* as soon as the range was found, the shooting was by no means up to the level of battle practice, notwithstanding that the weather conditions were absolutely perfect—a calm, clear day, with the sun behind the firing ships. Very soon the *Hero* was in the middle of a dense cloud of smoke, through which, now and again, flashed great tongues of fire, as shell after shell struck the helpless old warrior. It was soon over, however, and save for a slight list to port there was nothing to show, at a distance, the ordeal through which she had passed. The funnel and mast both stood, and very little smoke issued from the interior, but a closer inspection revealed the full extent of the damage. The upper deck had been blown up by the explosion of a heavy shell underneath it, the after conning tower had been penetrated and one of the lay-figures had day-light through his chest. Altogether twenty-eight hits had been scored out of one hundred and thirty rounds."

A REMINDER OF THE "BELLE ISLE"

The experiment on the *Hero* served as a reminder that seven years had passed since the last occasion when an old British ship was fired at with modern guns. That

was in 1900, when the *Belle Isle* was made the target of the twelve-inch and six-inch guns of the battleship *Majestic* and shelled for about eight minutes. The object then was to ascertain the general effect of modern gunfire on up-to-date armor and personnel. Valuable results were obtained, and the facts secured were placed at the disposal of the Admiralty for use in connection with the designs of ships built since the *Belle Isle* bombardment. While the "targeting" of the *Hero* was for an entirely different purpose, the results are understood to be just as interesting, and it is probable that a new policy will be inaugurated of sending other old ships from the retired list to the target grounds. There are a number of obsolete ships loafing around the coast-line of England with no mission except to occupy needed space at the Admiralty dockyards. Beginning with the battleship *Colossus*, which is to be the next to go, a series of these ships will be designated for gunnery tests. The French battleship *Jena*—which was recently blown up by an internal explosion at Toulon—is understood to be undergoing patching up for a fate somewhat similar to that of the *Hero*, the decision of the French Admiralty being that she is not worth the immense cost of rebuilding.

EXPLOSIONS TO PREVENT EXPLOSIONS

The experiments to be had with the battleship *Colossus* are ordered for the purpose of studying the effect of the kind of explosions which wrecked the *Jena* in the French navy and *Mikasa* in the Japanese. It will mean the loss of the *Colossus*; but the results obtained may cause innovations that will prevent the destruction of many *Dreadnoughts*—each one of which is worth a fleet of the *Colossus* class. The *Colossus* is to be destroyed by internal explosions. For this reason the old battleship will be fitted with magazine appliances of the most modern type and then stored with ammunition as well as high explosives. During the tests the magazines of the *Colossus* will be raised to certain temperatures, in order to test the reliability of the explosives. Then there will be an intentional explosion of magazines under certain designated conditions, to discover the effect. The *Colossus* was built at Portsmouth, where she now lies, in 1886, at a cost of over 600,000 pounds sterling, and is now twenty-one years old—the generally recognized limit of effective use for modern warships. A committee which has been investigating the best methods of storing ammunition in warships for safety will have general supervision of the *Colossus* experiments.

THE NORTH DAKOTA

At almost the moment that the American battleship fleet sailed out from Hampton Roads on its voyage to the Pacific, the keel of the first of the so-called American *Dreadnoughts* was laid down officially at the yards of the Fore River Shipbuilding Company at Quincy, Massachusetts. This battleship is to be known as the *North Dakota* and is a sister ship of the *Delaware*, the contract for which was awarded to the Newport News Shipbuilding and Dry Dock Company. Preparations for the keel-laying of the *Delaware* are in progress as this issue of THE NAVY goes to press.

ANOTHER MEMORABLE CONTEST BEGUN

The memorable contest in battleship construction between the Government constructors of the *Connecticut* at the Brooklyn Navy Yard and the builders of the *Louisiana* at the Newport News Company's yard, which attracted such widespread attention several years ago, promises to be eclipsed by the race already under way between the builders of the *Delaware* and *North Dakota*. The contract for the *Delaware* was placed on August 6, 1907, at a price of \$3,987,000, to have the Department's design of reciprocating engines installed and to be completed in thirty-six months from date, which means that the *Delaware* must be ready for delivery by August 6, 1910. The contract for the *North Dakota*, also signed on August 6, 1907, to have the bidder's design of Curtis turbine engines installed and to be completed within thirty-four and a half months, at a cost of \$4,377,000, requires the delivery of that battleship to the Government not later than June 21, 1910.

PROGRESS ON THE TWO SISTER SHIPS

Advices received at the Navy Department show that competition is already keen between the two shipbuilding companies, with the *North Dakota* about a month in the lead. The official progress report of December 10, 1907, issued by the Navy Department, together with the progress report of January 10, 1908, states that the per cent of completion of the two vessels at stated dates during the past three months has been as follows:—

	Nov. 1.	Dec. 1.	Jan. 1.
<i>Delaware</i>	2.33%	5.08%	7.05%
<i>North Dakota</i>	4.23%	7.84%	12.70%

WHAT THE KEEL-LAYING MEANS

The keel of the *North Dakota*, which is now farthest advanced, was officially laid at the Fore River Yards at 10.10 A. M., December 16, 1907. The first vertical plate was erected at 10.30 o'clock, and the first frame at 11.20. The laying of the keel represents the beginning of the actual assembling of the various parts of the vessel into ship form. The keel plates had been stretched out in the shipyards for several weeks prior to that date, while the concrete blocking was being made ready for the framework of the giant ship.

The keel and what is known as the laying of the keel, consists of putting into place on the keel blocks the first plate of the bottom part, or what might be called the backbone of the ship. It is the skeletonizing of the vessel. It does not indicate, however, that the building of the battleship has only begun; for, before the keel is laid, it is necessary to have on hand large quantities of material, much of which has already been laid off, punched, and in other ways prepared for putting into place. It also means that the ship has been completely laid down in the mold loft and that probably 50 per cent of all the plans in the construction of the vessel have been developed and approved. Perhaps this is better indicated by the fact that the official progress reports of the Navy Department credit the *North Dakota* with having been 7.84 per cent completed on December 1—fifteen days prior to the actual laying of her keel.

THE MANY PRELIMINARY STEPS

The preparation of the concrete foundation for the *North Dakota* to rest upon during her construction was no small task. The ways are so much longer than the ways where the *Rhode Island*, *New Jersey*, and *Vermont* were built that railroad tracks had to be torn up and the yard cleared for a considerable distance around the head of the ways, where the bow of the new ship will rest, so as to afford plenty of room and access. The *North Dakota*, like her sister vessel, will be 510 feet long—only 45 feet shorter than the height of the Washington Monument. While work was going on at the yard end of the ship, pile drivers were busy at the water front, driving solid foundations for the stern keel to rest upon.

While this preliminary preparation was going on, work was advancing on the steel work necessary for the keel plates. All of this material had to be tested and passed by government experts, and then punched in the proper places for the rivet holes. While work on the steel structures was being rushed, there were busy scenes in the slip where the ship is now being built, huge blocks of concrete being laid with mathematical nicety; and, when these blocks were firm as steel, the wooden keel blocks were laid down, so that there might not be the slightest divergence from the exact position to be occupied by the keel of the great 20,000 battleship.

DROPPING TONS OF STEEL INTO POSITION

Following these preliminaries, officials of the Fore River Company and naval officers attached to the yard assembled around the big electric crane, on the morning of December 16, to witness the birth of the new battleship. These included President Francis T. Bowles, president of the Fore River Company, who was chief constructor of the United States Navy from 1901 to 1903; his manager, Mr. H. Gerrish Smith, formerly a naval lieutenant and also a naval constructor; and the four naval officers assigned to duty by the Department as inspectors of the work. These latter were Commander John L. Gow, inspector of machinery; Lieutenant C. L. Arnold, inspector of ordnance; Naval Constructor H. G. Gillmor, superintendent of construction, and Commander Roger Welles, inspector of equipment.

At 10.10 o'clock the morning of the keel-laying, the big electric crane was brought about amidship of the keel, a long chain was lowered and the hook at the end was made fast to keel plate No. 10. The crane hoisted the keel plate and swung it over to the keel blocks where it was laid. With the same mechanical precision the other plates followed in quick succession. The plates of the outer keel were twenty in number, every plate being twenty-four feet long and four feet wide, each weighing three thousand pounds. When the first keel plates were in position, workmen began to get the frames of the vessel ready. Within an hour from the laying of the first keel plate, the first frame was in position.

The ways on which the *North Dakota* is being built have a pitch of 13-16th of an inch to the foot, and it is calculated that this incline will enable the 20,000 tons of steel to slide gracefully into the water at the launching. It is figured that the launching will take place next October, or within ten months from the laying of the

keel plates. The general dimensions and features of *North Dakota* and *Delaware* are the same:—

Length on load water line.....	510 feet
Extreme breadth at load water line.....	85 feet 2½ inches
Displacement on trial, not more than.....	20,000 tons
Mean draught to bottom of keel at trial displacement.....	27 feet
Total coal-bunker capacity (about).....	2,300 tons
Coal carried on trial.....	1,000 tons
Speed on trial.....	21 knots
Armament: Main battery—	
Ten 12-inch breech-loading rifles.	
Secondary battery—	
Fourteen 5-inch rapid-fire guns.	
Four 3-pounder saluting guns.	
Four 1-pounder semi-automatic guns.	
Two 3-inch field pieces.	
Two machine guns, calibre .30.	
Two submerged torpedo tubes.	

TEN BIG GUNS IN BROADSIDE

While both the *North Dakota* and *Delaware* have been commonly called "*Dreadnoughts*," that appellation is a misnomer. These two American ships not only have a greater displacement each than the *Dreadnought*, but their design is thoroughly distinctive from the chief feature of the big British battleship. The distinctive feature of these two 20,000-ton American battleships is found in the arrangement of the five turrets which each will carry. In both the *North Dakota* and the *Delaware* these turrets will be arranged in a straight axial line from stern to bow, so that a broadside of ten 12-inch guns may be fired from either side.

The British *Dreadnought* also has five turrets, but they are arranged entirely different from the improvement designed for the *North Dakota* class. The *Dreadnought* is capable of firing only eight 12-inch guns on each broadside, or two guns less on a broadside than the new American type of ship will be able to fire. The original *Dreadnought* has a 12-inch turret in a raised bow deck, two lower 12-inch turrets on the stern deck and one 12-inch turret on each side, further forward; but both of the stern turrets and the two side turrets are all on a deck that is lower than the bow turret. Each of the *Dreadnought's* turrets has two guns; but the floor plan of the turret arrangement is such that when a broadside is fired on the *Dreadnought*, one of the side turrets cannot be included in a broadside fire toward the opposite side of

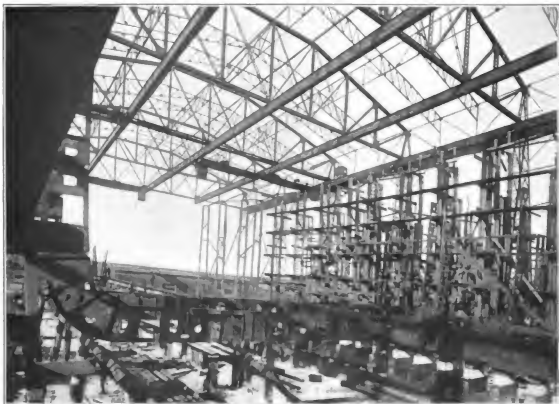


LOWERING AN OUTER KEEL PLATE OF THE U.S.S. *NORTH DAKOTA* INTO POSITION ON THE BLOCKS

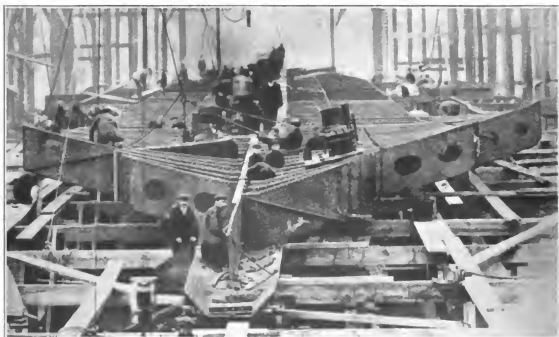


FROM THE NAVAL AND MILITARY RECORD

THE KEEL PLATE OF H.M.S. *ST. VINCENT*



TWENTY-FOUR HOURS AFTER LAYING FIRST PLATE OF U.S.S. NORTH DAKOTA



FROM THE NAVAL AND MILITARY RECORD

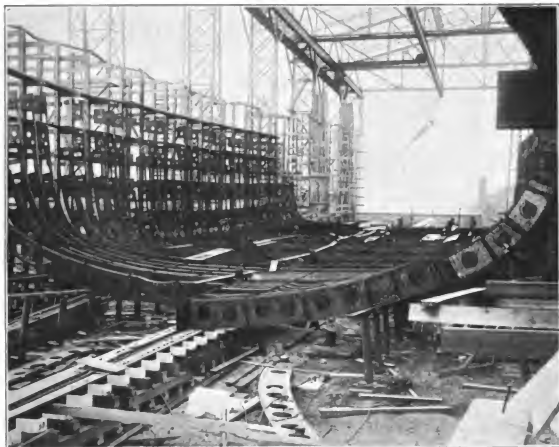
TWELVE HOURS' WORK ON H.M.S. ST. VINCENT

the vessel, and this reduces the *Dreadnought's* broadside fire to eight guns, as against the *North Dakota's* ten guns.

The five turrets of the *North Dakota* will be placed on the center line of the ship. The after turret of the forward pair of turrets will be raised so as to fire over the forward turret, and the middle turret of the three on the after deck will be raised so that its guns may fire over the turret nearest the stern. This arrangement will give the *North Dakota* class four guns each, direct ahead or direct astern. The *Dreadnought* has two more big guns for use

ahead and astern, but two less guns on a broadside fire than the *North Dakota* class.

Almost simultaneously with the official commencement of the first American *Dreadnought*—the 20,000-ton battleship *North Dakota*—the British Admiralty began the actual construction of the 19,250-ton battleship *St. Vincent*. This was done at the Portsmouth dockyard, on Monday, December 30, 1907, and marked the official beginning of work upon the first of a new class of improved *Dreadnoughts* for the British navy.



ONE WEEK'S WORK ON THE U.S.S. NORTH DAKOTA

ITALIAN NAVAL BALLOONING



The small picture shows the balloon being inflated on the quarterdeck of the cruiser *Elba*. The fact that this cruiser is only 272 feet long shows the relatively small amount of space needed for handling the balloon.

The middle picture shows a squadron of warships as seen from the balloon.

The bottom picture is a bird's eye view, from the balloon, of the city of Augusta, one of the temporary naval bases in the Italian naval maneuvers last fall.



THE CRUISE TO THE PACIFIC

Both the Atlantic battleship fleet and the torpedo flotilla which left Hampton Roads in December for the Pacific, were cordially received by the British colonists at Trinidad and magnificently feted by the Brazilian nation at Rio de Janeiro. The battleship fleet is now speeding toward Punta Arenas, in the Strait of Magellan, where it should arrive not later than February 1. The flotilla of six destroyers should, about that date, leave Buenos Ayres, which port was reached by the flotilla the morning of January 26. The reception tendered the officers and fourteen thousand men of the fleet at Rio is a memorable event in the annals of the navy and significantly important in the history of international relations between the United States and Brazil.

The torpedo flotilla left Hampton Roads December 2 and reached San Juan December 7, leaving there December 12 for Trinidad. Meanwhile, the battleship fleet was assembling at Hampton Roads from the navy yards, and, on Monday, December 16, after a series of brilliant functions at Old Point Comfort, the battleships passed through the Capes, after having steamed in review before President Roosevelt, the Secretary of the Navy, and members of their party on board the *Mayflower*. During most of the journey toward the tropics the fleet steamed in a formation of fours, with the flagships leading.

AT TRINIDAD

While at Trinidad the officers and men of the torpedo flotilla were extensively entertained. Sir Henry Moore Jackson, the Governor of that colony, officially visited Commander Cone. The flotilla was due at Trinidad December 15, but arrived a day ahead of time. According to the official itinerary, the flotilla should have left Trinidad December 21. It left the following day, but had not proceeded far before it returned to Trinidad, on account of a slight accident to the engines of the *Lawrence*, arriving December 23. On the same day the sixteen battleships arrived at Trinidad, where the colliers *Hannibal*, *Leonidas* and *Athalie*, and the supply ship *Arethusa* were also waiting. After repairs to the *Lawrence*, the flotilla left Trinidad December 25 for Para, Brazil.

The battleship fleet was royally entertained at Trinidad. The same honors that had been shown the officers and men of the flotilla were showered upon those of the battleships. There were several days of racing, polo, baseball, and aquatic sports. The fleet was decorated for Christmas. The weather was perfect for the holiday. The crew of the *Vermont* won the principal boat race, a half-mile contest for officers, with eleven cutters partici-

pating. Men of the *Kentucky* won the chief petty officers' race in cutters, by half a length, over a mile course. The town was filled with liberty men from the fleet during the stay at Trinidad.

While the fleet was celebrating Christmas, at Trinidad, Admiral Sebree's special service squadron, composed of the armored cruisers *Tennessee* and *Washington*, which preceded the fleet and flotilla around South America, was sighted of Pichilique, off the coast of Lower California.

Steaming at ten miles an hour the battleship fleet left Port au Spain the afternoon of December 29, according to schedule, for Rio. Before his departure from Trinidad, Admiral Evans signalled the following message to his ships:—

"Commander-in-Chief takes pleasure in communicating to the officers and men of the fleet the following extract from a letter received from the Governor of Trinidad: 'I ask to be allowed to offer congratulations on the irreproachable behavior of your men on leave. A residence of years at Gibraltar, the rendezvous of the fleets of the world, gave me experience with "Jack Ashore." I can assert your men have established a record hard to beat.' Admiral Evans wishes to express gratification that the conduct of the men is such as to merit commendation."

After a rough voyage, with head seas, the torpedo flotilla reached Para, December 30. One day's delay was caused by the weather, and four more days' departure from the itinerary were caused by accidents to the machinery of two of the destroyers. The flotilla was scheduled to reach Para on December 26, and to leave December 31, but did not leave for Pernambuco until January 3. Two days were made up by leaving Para early, but the flotilla reached Pernambuco, January 10, five days behind time. The weather was fair on the way around the northeastern coast of Brazil but the flotilla was delayed two days owing to the boilers of the *Stewart* becoming "salted." The *Panther* and *Yankton* reached Rio, January 10, fourteen days out from Trinidad. Owing to a shortage of coal in the *Yankton*, she was towed a few hours by the *Panther*.

AT RIO

On January 11 the captain of the German cruiser *Bremen*, at Rio, received a wireless despatch from the American battleship fleet announcing its approach to that port. The fleet arrived at Rio January 12—one day late—and remained there until January 22, when it left, one day late. The departure could have been made several days earlier, but the fleet awaited advices from Washington before leaving.

The official program for the entertainment of the officers of the fleet at Rio was as follows:

January 12—Officers of the fleet visit the Minister of Foreign Affairs, Baron de Rio Branco.

January 13—Visit to Dr. Penna, President of the republic at Petropolis; in the evening, a dinner at the American Embassy at Petropolis.

January 14—Breakfast given by the Minister of Marine, Admiral Alencar, on Mount Corcovado.

January 15—Breakfast given by the President of the republic at Petropolis and a garden party at the American Embassy.

January 16—Entertainment by the American colony at Fluminense Park.

January 17—Picnic given by the Minister of Marine at the Botanical Gardens.

January 18—Dinner given by the Minister of Foreign Affairs in the Monroe Pavilion.

January 19—Picnic given by the Brazilian navy at Tijuca Park.

The Italian cruiser *Figlia* arrived at Rio, January 15, bound from St. Vincent for Montevideo. It developed in connection with the visit that the *Figlia* would join another Italian cruiser at Montevideo for target practice, after which they intend visiting the other coast, to re-establish the Italian Pacific Station. The torpedo flotilla left Pernambuco January 13 for Rio, and arrived there January 17—five days before the departure of the battleship fleet for the Strait. The *Lawrence* was again in need of repairs at Rio. During the stay at Rio it was decided to alter the itinerary of the flotilla to include Buenos Ayres, instead of Montevideo, Argentina having expressed regret that its capital was not included in the itinerary. While the battleships and destroyers were at Rio, the following memorandum was given to the press by the Navy Department at Washington:—

"The Torpedo Flotilla having fallen so far behind their itinerary, the Commander in Chief of the Battleship fleet has requested that the destroyers accompany the battleships from Rio to Sandy Point (Punta Arenas). The Commander in Chief has been authorized by the Department to use his discretion in this matter, and it is quite likely that the destroyers will not stop at intermediate ports between Rio and Sandy Point."

After this announcement, Admiral Evans decided to have the flotilla stop at Buenos Ayres. The destroyer *Hopkins* was docked at Rio to have a new propeller attached. Rio harbor never presented a more striking scene than after the arrival of the flotilla. In addition to the sixteen American battleships and six destroyers, with their auxiliaries, there were at anchor in the harbor

the Brazilian fleet, the German cruiser *Bremen*, and the Italian cruiser *Figlia*. The German cruiser was ordered by the Berlin government to lengthen its stay at Rio until the departure of the American fleet, in order to gather material for technical reports.

HEADING TOWARD THE STRAIT

The American flotilla left Rio for Buenos Ayres the night of January 21—one day behind schedule. Nothing has yet occurred to mar the general success of the voyage. Several courts-martial were ordered by Admiral Evans, but these were minor incidents. Several breakdowns of machinery were reported, but not enough to impede the progress of the ships.

When the battleship fleet left Rio January 22, the quays and hills around Rio were crowded. The American battleships were escorted to sea by three battleships, seven cruisers, and six destroyers of the Brazilian navy. A squadron of Argentine warships met the American battleship squadron off Cape Corrientes January 27 to escort them to Punta Arenas. A flotilla of six Argentine destroyers met the American flotilla off Flores Island January 25 and escorted them to Buenos Ayres, arriving January 26, one day behind the itinerary. The Chilean warship *Chacabuco* has been ordered to Punta Arenas to meet the American ships and escort them through the Strait. Other Chilean warships will welcome the American ships to Chilean waters. This attention from the Chilean government is another indication of the uniform interest our Latin-American neighbors are showing in the voyage.

The most important stretch of the cruise has now been reached—the passage of the Strait of Magellan. While this requires care and good seamanship, no anxiety exists concerning the ability of the American naval officers to navigate the vessels safely through the passage.

PERSONNEL AND SHIPS OF THE ATLANTIC FLEET*

REAR ADMIRAL ROBLEY D. EVANS, Commander-in-Chief.

Captain Royal R. Ingersoll.....	Chief of Staff
Lieutenant-Commander Lloyd H. Chandler.....	Flag Lieutenant
Lieutenant-Commander Ridley McLean.....	Flag Secretary
Lieutenant Charles R. Train.....	Aid
Lieutenant David A. Weaver.....	Aid
Naval Constructor Richard H. Robinson.....	Accompanies fleet on special temporary duty.
Assistant Naval Constructor Lewis B. McBride.....	Accompanies fleet on special temporary duty.

FIRST SQUADRON—FIRST DIVISION

REAR ADMIRAL ROBLEY D. EVANS, Commanding.

Battleships *Connecticut*, *Kansas*, *Vermont*, and *Louisiana*.

*Pictures of the ships of the Atlantic Fleet, with lists of their officers, will be printed in successive issues of THE NAVY.



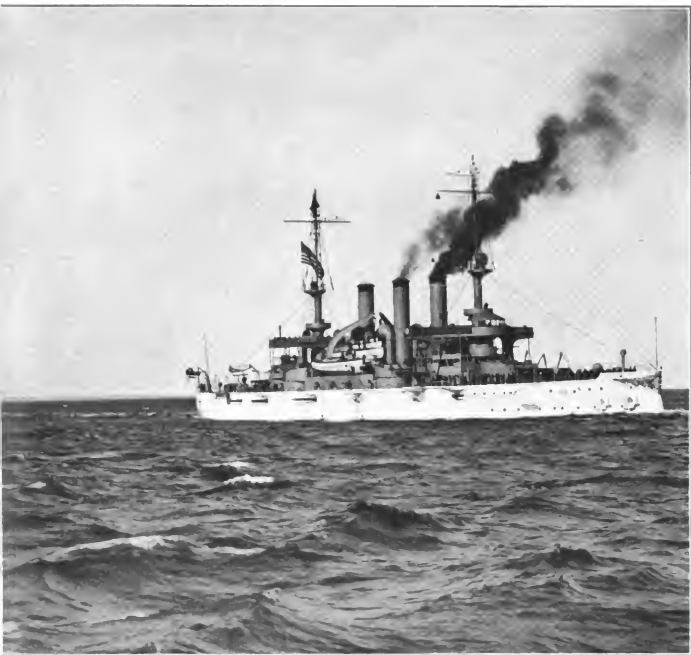
BATTLESHIP CONNECTICUT
(Flagship of Commander-in-Chief)

Normal displacement	16,000 tons
Full load displacement	17,666 tons
Length over all	456 feet 3 inches
Beam	76 feet 10 inches
Mean draught	24 feet 6 inches
Bunker capacity	2,276 tons
Speed on trial	18.78 knots
Battery—Four 12-inch, eight 8-inch, twelve 7-inch, twenty 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight inch, 6 inches.	

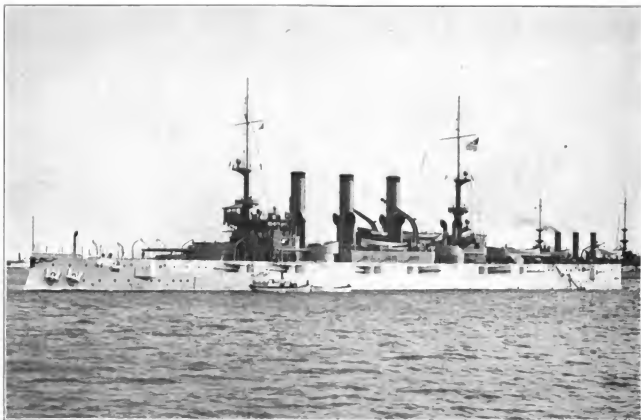
Captain Hugo Osterhaus.....	Commanding Officer	Midshipman Joseph Bear.
Lieutenant-Commander Mark L. Bristol.....	Executive Officer	Midshipman George M. Dallas.
Lieutenant-Commander George C. Day.....	Navigating Officer	Midshipman Charles M. Lynch.
Lieutenant-Commander Simon P. Fullinwider..	Ordnance Officer	Surgeon Lloyd W. Curtis.....
Lieutenant-Commander Robert B. Higgins, Fleet Engineer Officer		Passed Asst's Surgeon Paul E. McDonnold, Asst's Medical Officer
Lieutenant Harry E. Yarnell.		Assistant Surgeon Robert C. Ramsdell...Assistant Med' l Officer
Lieutenant George I. Smith.		Pay Inspector H. A. Dent.....
Lieutenant William P. Cronan.		Pay Officer
Lieutenant Charles S. Freeman.		Assistant Paymaster Harry E. Collins.....
Lieutenant Hayne Ellis.		Major of Marines Dion Williams.
Lieutenant Byron A. Long.		Captain of Marines Charles C. Carpenter.
Lieutenant Richard Wainwright, Jr.		Matthew C. Gleason.....
Lieutenant Adolphus Staton.		Chief Boatswain Henry Hudson.....
Midshipman Lew M. Atkins.		Chief Gunner Frank C. Messenger.
Midshipman Churchill Humphrey.		Chief Gunner William G. Moore.
Midshipman Alexander Sharp, Jr.		Gunner William C. Bean.
Midshipman John W. W. Cunningham.		Chief Carpenter Charles S. Taylor.
Midshipman Irving H. Mayfield.		Warrant Machinist James W. Murray.
Midshipman Ralph C. Needham.		Warrant Machinist Joel T. Biggs.
Midshipman Ralph C. Parker.		Warrant Machinist Rasmus Iversen.
Midshipman Emanuel A. Lofquist.		J. M. Holmes, fleet clerk
		B. L. Lankford, ship's clerk } Paymaster's Clerks



THE ATLANTIC FLEET LEAVING HAMPTON ROADS,
THE CONNECTICUT



DECEMBER 16, 1907, ON ITS CRUISE TO THE PACIFIC
LOADING THE COLUMN



BATTLESHIP KANSAS

Normal displacement	16,000 tons
Full load displacement	17,650 tons
Length over all	456 feet 4 inches
Beam	76 feet 10 inches
Mean draught	24 feet 6 inches
Bunker capacity	2,200 tons
Speed on trial	18.094 knots
Battery—Four 12-inch, eight 8-inch, twelve 7-inch, twenty 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 9 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.	

Captain Charles E. Vreeland Commanding Officer
 Lieutenant-Commander Philip Andrews Executive Officer
 Lieutenant-Commander William C. Cole Navigating Officer
 Lieutenant Henry C. Mustin Ordnance Officer
 Lieutenant Edward C. Kalbfus Senior Engineer Officer
 Lieutenant Joseph K. Taussig Assistant Engineer Officer
 Lieutenant Arthur B. Keating
 Lieutenant John M. Enoch
 Ensign John S. Arwine, Jr.
 Ensign William F. Halsey, Jr.
 Ensign Christopher R. P. Rodgers
 Ensign Harold G. Bowen
 Midshipman William P. Williamson
 Midshipman William S. Farber
 Midshipman Archibald D. Turnbull
 Midshipman Albert M. Cohen
 Midshipman Sloan Danenhower
 Midshipman Charles T. Blackburn
 Midshipman Thomas A. Symington

Midshipman Richard S. Galloway
 Midshipman Edgar A. Ewing
 Midshipman Jere H. Brooks
 Midshipman George W. Sampson
 Midshipman Edmund D. Almy
 Midshipman James Parker, Jr.
 Surgeon John M. Moore Medical Officer
 Passed Ass't Surgeon Frederick A. Asserson, Ass't Medical Officer
 Paymaster John H. Merriam Pay Officer
 Captain of Marines Arthur E. Harding
 Second Lieutenant of Marines Henry S. Green
 Chief Boatswain James Dowling
 Gunner Glendon W. Irwin
 Gunner Clarence D. Holland
 Carpenter Lawrence A. Maaske
 Warrant Machinist Edward G. Affleck
 Warrant Machinist John L. Barnswell
 Warrant Machinist Frank R. Barker
 C. F. Bennett Paymaster's Clerk



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BATTLESHIP VERMONT

Normal displacement	16,000 tons
Full load displacement	17,650 tons
Length over all	456 feet 4 inches
Beam	76 feet 10 inches
Mean draught	24 feet 6 inches
Bunker capacity	2,200 tons
Speed on trial	18.33 knots
Battery—Four 12-inch, eight 8-inch, twelve 7-inch, twenty 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 9 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.	

Captain William P. Potter.....Commanding Officer
 Lieutenant-Commander Levi C. Bertolotto.....Executive Officer
 Lieutenant-Commander Adolbert Althouse.....Navigating Officer
 Lieutenant Leigh C. Palmer.....Ordnance Officer
 Lieutenant Walter B. Tardy.....Senior Engineer Officer
 Lieutenant Luther M. Overstreet.
 Lieutenant Harry L. Brinser.
 Lieutenant Charles F. Snyder.
 Ensign Stephen C. Rowan.
 Ensign Samuel M. Robinson.
 Ensign Robert A. Dawes.
 Ensign Bruce L. Canaga.
 Midshipman Ralph T. Hanson.
 Midshipman Horace T. Dyer.
 Midshipman George McC. Courts.
 Midshipman Jacob L. Hydrick.
 Midshipman Louis F. Thibault.
 Midshipman William F. Cochrane, Jr.
 Midshipman Frederick P. Lilley.
 Midshipman Riley F. McConnell.

Midshipman Homer H. Norton.
 Midshipman Richard B. Coffman.
 Midshipman Patrick N. L. Bellingier.
 Midshipman Herman E. Welte.
 Surgeon Francis M. Furlong.....Medical Officer
 Passed Asst Surgeon Charles E. Ryder.....Asst Medical Officer
 Paymaster John S. Higgins.....Pay Officer
 Assistant Paymaster Eugene H. Douglass.....Assistant Pay Officer
 Captain of Marines Charles H. Lyman.
 Second Lieutenant of Marines Andrew B. Drum.
 Chief Boatswain Phillip Mullen.
 Gunner William J. Creelman.
 Gunner (electrical) William H. Dayton.
 Gunner (ordnance) Floyd F. Meredith.
 Chief Carpenter Timothy E. Kiley.
 Warrant Machinist William R. Scofield.
 Warrant Machinist Henry Smith.
 Warrant Machinist Charles A. Rowe.
 William H. Crap.....Paymaster's Clerk



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BATTLESHIP LOUISIANA

Normal displacement	16,000 tons
Full load displacement	17,666 tons
Length over all	456 feet 8 inches
Beam	76 feet 10 inches
Mean draught	24 feet 6 inches
Bunker capacity	2,400 tons
Speed on trial	18.823 knots

Battery—Four 12-inch, eight 8-inch, twelve 7-inch, twenty 14-pdr., and small guns; four 21-inch submerged torpedo tubes.

Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.

Captain Richard Wainwright.....Commanding Officer
 Lieutenant-Commander Edward W. Eberle.....Executive Officer
 Lieutenant-Commander Charles T. Jewell.....Navigating Officer
 Lieutenant Robert W. McNeely.....Ordnance Officer
 Lieutenant Walton R. Sexton.....Senior Engineer Officer
 Lieutenant Frank T. Evans
 Lieutenant Charles H. Fischer
 Lieutenant Zachariah H. Madison
 Lieutenant Hugo W. Osterhaus
 Ensign Nathan W. Post
 Ensign Hugo Frankenberg
 Ensign Arthur K. Atkins
 Midshipman Edward S. Moses
 Midshipman Roland M. Brainard
 Midshipman Frederick W. Milner
 Midshipman Damon E. Cummings
 Midshipman Harold V. McKittrick
 Midshipman Harlow T. Kays
 Midshipman Samuel L. Henderson

Midshipman Francis A. L. Vossler
 Midshipman Richard F. Bernard
 Midshipman Walter R. Montser
 Surgeon Andrew R. Wentworth.....Medical Officer
 Assistant Surgeon Willard G. Steadman, Jr., Ass't Medical Officer
 Paymaster Charles W. Eliason.....Pay Officer
 Assistant Paymaster Frank Baldwin.....Assistant Pay Officer
 Captain of Marines John W. Wadleigh
 Second Lieutenant of Marines Ralph S. Keyser
 Boatswain Alexander Stuart
 Chief Gunner James Shannon
 Chief Gunner Charles Hierdahl
 Gunner Edwin Alberts
 Carpenter Thomas O. Covell
 Warrant Machinist Oscar Berentson
 Warrant Machinist William B. Stork
 Warrant Machinist Charles Allen
 George B. Kimberly.....Paymaster's Clerk

A REVIEW OF THE NAVAL SITUATION

Events have moved rapidly in the naval establishment within the past month. The important Bureau of Navigation has changed hands. A naval surgeon has been ordered to command a hospital ship in the navy. The question of the relative status of the line and the staff has been reopened and accentuated. Congress has taken a hand in the matter; and Chairman Hale, of the Senate Naval Committee, has not only vigorously opposed the Administration's decision respecting hospital ship commands, and declared his intention of fighting for positive rank for the staff corps, but has also introduced a measure that is in many respects revolutionary and bound to provoke criticism, not only striking at the General Board of the Navy, which he wants to abolish, but containing many other ideas as a basis for a general investigation of the naval establishment, under the direction of the Senate Naval Committee.

It was anticipated that Congress would give attention to the Navy Department, but it was not believed the storm would break so early in the session. Scarcely, however, had the battleship squadron under Rear Admiral Evans steamed in through the Dragon's Mouth and anchored in four columns in the Gulf of Paria, five miles from Port of Spain, Trinidad, completing the first lap of its voyage to the Pacific, before the resignation of Rear Admiral Willard H. Brownson (retired), as Chief of the Bureau of Navigation, acted as a bomb in the arena of naval controversy. The announcement of his resignation came, in fact, almost simultaneously with the arrival of the fleet at Trinidad.

A REVIEW OF THE SITUATION

Since then the developments may be summarized as follows:—

December 23.—Battleship fleet reaches Trinidad.

December 24.—Rear Admiral Brownson resigns, on account of the decision of President Roosevelt to adopt Surgeon General Rixey's recommendation for the assignment of a surgeon to hospital ship "command."

December 24.—President Roosevelt accepts the resignation, to take effect immediately, and directs Rear Admiral Brownson to turn over the affairs of the Bureau of Navigation to Captain Cameron McRae Winslow, who became Acting Chief of the Bureau.

December 25.—Surgeon General Rixey gives out formal statement to the daily press in support of his contention that surgeons should command hospital ships, and, incidentally, criticises the Bureau of Navigation by declaring it had "interfered" with the work of the Bureau of Medicine and Surgery.

December 26.—Senator Hale issues statement praising Rear Admiral Brownson for his action, criticising the Rixey hospital-ship-command idea, and declaring for positive rank for the staff corps.

December 26.—Written recommendation of Surgeon General Rixey for assignment of Surgeon Charles F. Stokes to command the hospital ship *Relief* reaches Bureau of Navigation, but no action is taken pending return of President Roosevelt from a hunting trip in Virginia, where he was accompanied by Surgeon General Rixey.

December 26.—Orders issued, formally detaching Rear Admiral Brownson from duty on the Joint Army and Navy Board.

December 30.—Secretary Metcalf lets it be known that the Navy Department was preparing to reply to the Reuter dahl and other criticisms of the Navy Department, and that Chief Naval Constructor Capps and the former Chief of the Bureau of Navigation, Rear Admiral Converse, were assembling data with that end in view, by direction of the President.

December 29.—Senator Perkins, of California, one of the ranking members of the Senate Naval Committee, gives an interview praising action of Admiral Brownson and opposing hospital-ship-command policy of the Administration.

January 2.—President Roosevelt announces the choice of Captain John E. Pillsbury, of the General Board, to succeed Rear Admiral Brownson, as Chief of the Bureau of Navigation.

January 4.—After a week's delay, Secretary Metcalf signs the order directing Surgeon Stokes to take command of the *Relief*, but not until after written authority for that action was received from the White House.

January 5.—President Roosevelt authorizes Secretary Metcalf to give out for publication two letters from the former to the latter, severely condemning Rear Admiral Brownson for resigning, and also defending the course of the Administration in rejecting Rear Admiral Brownson's objections to the assignment of a surgeon to "command". The Administration is criticised for not making public the correspondence attending Rear Admiral Brownson's resignation.

January 6.—President Roosevelt authorizes the publication at the White House of Rear Admiral Brownson's letter of resignation and the President's letter of acceptance, with the statement that they had been "inadvertently omitted" from the correspondence given out for publication the previous day.

January 7.—Representative Gill of Maryland introduces resolution in the House of Representatives calling upon Secretary Metcalf for all correspondence and data on file in the Department, concerning Rear Admiral Brownson's resignation and the assignment of Surgeon Stokes to the command of the *Relief*, this resolution having been introduced because of the belief that all of the data had not been made public.

January 7.—Representative Dawson of Iowa, a member of the House Naval Committee, introduces a measure for the reorganization of the Navy Department and the so-called "Bureau System" of naval administration.

January 9.—Senator Hale introduces a bill in the Senate as the basis for investigation and legislation, and precipitates a sharp debate in the Senate, where Senator Tillman served notice that he wanted a thorough "airing" of the whole subject of naval administration and construction, and Senator Foraker passed significant comment upon the "precedents" upon which the President dwelt in his letter of January 2 defending his hospital ship policy.

January 10.—House Naval Committee reports the Gill resolution of inquiry favorably to the House. Naval administration is criticised at annual meeting of the Navy League at Washington.

January 11.—The House passes the Gill resolution.

January 14.—The Senate confirms the appointment of Captain Pillsbury as Chief of the Bureau of Navigation, for four years.

January 17.—Captain Pillsbury assumes his duties as Chief of the Bureau of Navigation.

January 23.—Data sent to the House, in response to the Gill Resolution.

THE RESIGNATION OF ADMIRAL BROWNSON

The resignation of Rear Admiral Brownson came so suddenly that it could scarcely be believed in naval circles in Washington. Only those intimately connected with the work of the two bureaus of the department directly concerned with the hospital ship question knew of the quiet, but none the less determined, struggle that had been in progress for some four months before the crisis came. Surgeon General Rixey had the matter in contemplation for some time, but, until the attempt was actually made to carry out his recommendations, the proposition lay quiescent in the Department. It was brought to a head by the request of Surgeon General Rixey for the assignment of a surgeon to "command" the *Relief*. Then it was that Rear Admiral Brownson submitted to the President memoranda fully setting forth his own position in opposition to such a policy. He based his action upon the contention that the issuance of such an order would be contrary to law, unsound in policy, a violation of precedents worth considering, and generally detrimental to the whole theory of military command.

The resignation of Rear Admiral Brownson was sent to the President about the middle of the day, and announcement of its acceptance was made at the White House within the next hour, without assignment of reason or other explanation. Through persons in the confidence of the President it became known late Christmas Eve that the resignation grew out of the fact that the judgment of Rear Admiral Brownson had been brushed aside in the Presi-

dent's decision to adopt the recommendations of the Surgeon General. Rear Admiral Brownson felt that he could no longer hold his self-respect and the position of Chief of one of the most important branches of the service, when the Commander-in-Chief had exhibited lack of confidence in him.

SURGEON GENERAL RIXEY'S STATEMENT

When the reason for the resignation became generally known on Christmas Day, nothing else was discussed wherever service men met in Washington. At the White House neither denial nor confirmation of the cause attributed was forthcoming; but that evening Surgeon General Rixey, upon his return from his farms just outside of the capital, issued a typewritten statement which he had prepared for publication, setting forth his contention why surgeons should be given command of hospital ships. The statement read as follows:—

"Admiral Brownson and I have been friends for many years, and when on duty in Washington as naval attending surgeon I was his family physician. His resignation as Chief of the Bureau of Navigation has been assigned to various causes, among others to a difference of opinion as to the command of the hospital ship *Relief*. While I do not know that this is a cause, it may be interesting to know the present status of this question.

"Hospital ships as a rule always have been commanded by medical officers, with a sailing master and civilian crew for purposes of navigation. The *Relief*, formerly belonging to the United States Army, was always commanded by a medical officer when used as a hospital ship.

"A joint board of army and navy medical officers, convened by executive order more than a year ago to attempt to unify the medical services as much as possible, recommended that hospital ships should be commanded by medical officers, and the recommendation was approved by both the Secretary of War and the Secretary of the Navy in general orders.

"The question was settled definitely, so far as the army was concerned, during the Civil War, and all hospital ships and medical transports placed under the Surgeon-General of the Army, and have remained so up to the present time.

"The Japanese naval hospital ships were commanded by medical officers after having tried line officers. Hospital ships are simply floating hospitals, and as such are considered by all services to be properly under the control of the medical department, which is directly responsible for the care of the sick and injured of the services.

"Naval medical officers have had positive rank for some years, given them by act of Congress, but as the use of titles which indicate rank has been denied them, it is not generally known. They also have the right to command in their own corps, and all those who are intrusted to their care, whether on the sick list, in the hospitals, or on hospital ships.

"I have contended that hospital ships should be conducted in peace exactly as in time of war. During wartime line officers cannot be spared and do not, and should not, desire the command of these ships, and it has always been considered a doubtful question if the Geneva and Hague agreements could guarantee the neutrality of these ships if combatant (line) officers and crew were aboard. This very doubt prevented the Japanese from using line officers on hospital ships.

"A medical officer in command, with a civilian sailing-master and crew for the navigation of the ship, has been proved over and over again the proper personnel for this type of ship. The Bureau of Medicine and Surgery is directly responsible for the welfare of the health of the navy, and every friend and relative looks to it for the care of the sick and wounded. This work would have the sympathy and active support of everyone.

"The internal administration of the Bureau of Medicine and Surgery has been, in my opinion, too much interfered with by the Bureau of Navigation. This interference has at times caused me grave concern as to how I could meet the needs of those under our care.

"At present the hospital ship *Relief* would be in commission, and after having done good service with the fleet before starting, would have accompanied it on the cruise south. The Bureau of Navigation thought otherwise, and the fleet of 15,000 men, with its auxiliaries, is without a hospital ship, and will be until it arrives at Magdalena bay, more than three months from now.

"I have only asked that the *Relief* be put in commission, just as every other hospital ship has been, and that the navy medical officer be given exactly the same status as that accorded to his brother officers in the army who have commanded this identical ship. Not to do this would be unfair to our medical officers.

"As this is a matter pertaining entirely to the Bureau of Medicine and Surgery, and is decided by the Secretary of the Navy, it is hard to understand how Rear Admiral Brownson could be specially involved, as his duties pertain entirely to another bureau not directly responsible for the care of the sick of the navy, and in such he should not interfere unless directed by the Secretary."

THE EFFECT OF THE RIXEY STATEMENT

Publication of the statement from Surgeon General Rixey served only to add fuel to the fire. There was severe criticism of the fact that one of the interested Bureau chiefs was permitted publicly to discuss the controversy, while the other was in no position to defend himself without subjecting himself to court-martial liability under the Navy Regulations. Rear Admiral Brownson sat still and said nothing. His reasons for opposing the recommendations of Surgeon General Rixey were not made public, and it was not until January 6 that his letter of resignation was issued at the White House for public perusal. The Rixey statement not only sought to justify the decision in favor of surgeons to "command", but also

passed strictures upon the administration of the Bureau of Navigation, and intimated that it was "none of the business" of the Bureau of Navigation what the Surgeon General recommended respecting the work of the Bureau of Medicine and Surgery. This contention has been vigorously disputed. Senators Hale and Perkins and former Secretary Chandler of the Navy Department have all asserted, since the publication of the Rixey interview, that the position of Rear Admiral Brownson was thoroughly sound.

FUNCTIONS OF THE BUREAU OF NAVIGATION

In many respects the work of the Bureau of Navigation has been placed upon a more important footing than that of other Bureaus in the Navy Department. Primarily that Bureau is entrusted with the duty of considering all that relates to the promulgation, record and enforcement of the orders of the Secretary of the Navy to fleets and officers, and the establishment of the complement of the crews of all vessels in commission. Besides this, the Chief of the Bureau of Navigation has for years been an important advisory officer to the head of the Department, and this fact has been recognized in locating the offices of that Bureau in such juxtaposition to the office of the Secretary that the two officers may have immediate, ready, and frequent access to each other for conference.

Since the establishment of the General Board, every Chief of the Bureau of Navigation has been, *ex officio*, a member of that body. Furthermore, every chief of that Bureau has also been a member of the Army and Navy Joint Board since the régime of the late Rear Admiral Taylor, when that Board was established by executive order. In his annual report as Secretary of the Navy in 1903, Mr. Moody commented upon the growing importance of the position of Chief of the Bureau of Navigation and the enlargement of its functions. No other Bureau is represented by its Chief upon either the General Board or on the Army and Navy Joint Board. The Army and Navy Joint Board was established by general orders issued to both the Army and the Navy in July, 1903. It followed the organization of the General Staff of the Army, in accordance with the General Staff Act of February 14, 1903, under which there was an entire reorganization of the system of military control for the army. Following the same general policy which resulted in the formation of the Army General Staff, the Secretaries of War and the Navy, who were then Elihu Root and William H. Moody, entered into an arrangement, with the approval of the President, for the creation of the Army and Navy Joint Board. It was in connection with this course that

Secretary Moody pointed out the enlarged scope of the work of the Chief of the Bureau of Navigation.

SENATOR HALE'S VIEW OF THE CONTROVERSY

The Rixey statement was followed, December 27, by the interview with Senator Hale, Chairman of the Senate Naval Committee, in which he said:—

"I think that Admiral Brownson has acted with praiseworthy courage and promptness in tendering his resignation. I have always sustained the staff officers in their fight for positive rank and complete recognition, such as are received by their peers in the army, and I now have a bill pending which gives them such recognition throughout the service. But in that measure there is a precautionary provision against giving them actual command of any naval vessel. This is the continuation and an extension of the fight between the two branches of the service. That fight is the crux of the present controversy, and because I think he is right my support is given unreservedly to the Admiral as against the contentions of Surgeon General Rixey. It may be that on some occasions staff officers have been in command of vessels, but I know of no instance when such officers have been given command after the point was raised and both sides were heard. I do not believe that the contention for command by staff officers has been pressed seriously at any time in the past. Indeed, I am of the opinion that the old staff officers would never have asked for such recognition."

When asked for his reasons for the position taken, Senator Hale replied:—

"They are entirely in the interests of discipline. Think what might happen if the command of the vessels should be turned over to a chaplain or even to a paymaster, and it is just as reasonable to put the crews of naval vessels under the charge of those officers as it is to place them under the command of a surgeon. Evidently Admiral Brownson recognizes this fact, and, being a man of character and decision, he did not hesitate to resign his position when, as the active head of the Bureau of Navigation, his view of the law and of the best policy in the interest of the service was overruled. He will not lose anything by his manly course, either in the navy or with the public."

POSITIVE RANK FOR STAFF OFFICERS

Senator Hale's incidental declaration that he would urge legislation to confer "positive rank" upon staff officers naturally pleased the medical and other staff officers. It was just what Surgeon General Rixey, among others of the staff corps, has long advocated. Under date of October 1, 1906, Surgeon General Rixey, as president of the medical board which examined existing laws, recommended the following titles:—

One rear-admiral and surgeon general, with the rank of a rear-admiral of the upper nine numbers in the line of the

Navy and the pay and allowances of a major-general in the Army; three rear-admirals, medical corps, with the rank of a rear-admiral of the lower nine numbers in the line of the Navy and the pay and allowances of a brigadier-general (this is a new and distinct grade); twenty captains, medical corps (at present medical directors), an increase of five; twenty-five commanders, medical corps (at present medical inspectors), an increase of ten; one hundred lieutenant-commanders, medical corps (at present surgeons), an increase of fifteen; and one hundred and ninety-seven lieutenants and junior grade lieutenants, medical corps (at present passed assistant and assistant surgeons).

MEDICAL ADVISER FOR FLEET COMMANDER

In the same letter of October 1, 1906, Surgeon General Rixey said:—

"Section 1373, Revised Statutes, provides for the detail of fleet surgeons by the President. This should be definitely construed to give the medical officer so detailed all the rights and privileges of his office and require of him the performance of all his duties. Incidents have repeatedly arisen wherein the commander-in-chief has practically ignored the surgeon of the fleet and assigned him to duty and quarters other than the flagship. The duties of his office have frequently been neglected and ignored, and their importance minimized. The fleet surgeon should, in strict interpretation of existing law, be recognized as the medical adviser of the commander-in-chief. His duties should be defined by regulation to include all such administrative sanitary matters as are outlined for the Medical Department in the Navy Regulations, as amended, as far as these are applicable to the fleet; and he should be required to make complete reports to the Bureau of Medicine and Surgery, through official channels, in accordance with his prescribed duties."

THE NAVIGATION LAWS

The views expressed by Senator Hale on December 27 were endorsed December 28 in a statement made by Senator Perkins, who ranks next to Mr. Hale in seniority upon the Senate Naval Committee. Senator Perkins has been a member of that committee ever since he entered the Senate in 1893. He is qualified to express an intelligent opinion, both by reason of his service on the Naval Committee and his previous service as a sailor and ship-owner. He was for thirty years a ship-owner and manager on the Pacific Coast, and before he was seventeen, had made seven voyages before the mast from New Orleans to Europe. In 1855 he went as a sailor on the old *Galatea* around the Horn from New Orleans to San Francisco.

"To my mind it is about as sensible to place a hotel man or steward in command of the *Lusitania*, on the plea that she is a floating hotel, as to order a surgeon to command the *Relief* because she is regarded as a floating hospital.

"If anything goes wrong with any of our warships or other naval vessels, the Bureau of Navigation is held responsible to the Navy Department and to the Administration. If the chief of the Bureau of Navigation should place an incompetent officer in command of a vessel, he would be severely censured as the responsible head of the Bureau. Therefore, I am rather deeply in sympathy with the course that Rear-Admiral Brownson took in opposition to the assignment of any but a line officer to the command of a hospital ship.

"In our American merchant marine, under the navigation laws enacted by Congress, no one is eligible for appointment even as fourth officer of a merchant ship, freight or passenger, until he has qualified at a rigid examination in seamanship and in knowledge of navigation and nautical affairs. Now, why should there be any different rule established for the United States Navy from the general rules governing the navigation of the world, naval or maritime? There is special reason why this should not be done, when Congress has established at Annapolis the best naval academy in the world for the proper training of the line officers of our naval service."

SURGEON STOKES ORDERED TO COMMAND

The order assigning Surgeon Charles F. Stokes to command the hospital ship *Relief* was formally signed by Secretary Metcalf on January 4. It was not signed till written authority to take the step was given the Secretary of the Navy by the President, in a letter from the latter. Pending the receipt of this letter, Secretary Metcalf hesitated about signing the order. The whole case was reviewed before the President sent his written instructions to Secretary Metcalf. This review was made with the aid of several legal opinions, including one provided by Attorney-General Bonaparte, showing reasons for the change, which was authorized by him a few days before he ceased to serve as Secretary of the Navy, in December, 1906. The change which Secretary Bonaparte approved at that time was the recommendation of the Joint Army and Navy Board of medical officers that hospital ships be placed under the command of medical officers.

REBUKED AFTER FORTY-SIX YEARS' SERVICE

Engrossing as the subject had been for all branches of the military service—line and staff—up to this time, the controversy was given a sensational turn by the President when, on January 5, he authorized the Secretary of the Navy to give out for publication the following morning two letters concerning the resignation of Rear Admiral Brownson, and what led to that action. In one of these letters—both written after the Administration had been criticised for failure to make public the resignation correspondence—the President severely criticised Rear Admiral Brownson, accusing him of "disloyalty" and

"unseemly" action. It also sought to rebuke those who have pointed out naval defects. While the hospital ship question was not related to the criticisms that have been made of certain defects in warships, the President mixed the two propositions and welded them together in such manner that Congress could not have done otherwise than to demand a thorough investigation of the Navy Department. Besides saying unpleasant things about Rear Admiral Brownson, the President declared that officers had been casting discredit upon the service and were deserving of rebuke.

THE PRESIDENT'S LETTER

"THE WHITE HOUSE,

"WASHINGTON, January 2, 1908.

"To the Secretary of the Navy:

"In accordance with our conversation of to-day, Captain Pillsbury will be appointed Chief of the Bureau of Navigation.

"The action of the late chief of the bureau, Admiral Brownson, in tendering his resignation because he did not agree with the President and the department regarding an order, issued before he came into the bureau by the Secretary of the Navy, as to the control of the hospital ships, was unseemly and improper, and, coupled with the various controversies among the officers of the navy and their adherents as to details of naval construction and methods of training, has undoubtedly been prejudicial to the interests of the navy and may seriously impair the confidence in the navy which is essential to securing the legislation so sorely needed by the navy. The way in which these controversies have been carried out is highly injurious to the service, whether the communications are made openly over the signatures of the naval officers or by civilians who have evidently gained their information from naval officers.

"There always are and always will be defects to correct both in the construction of ships and in the organization of the department and in the actual drill of the fleet. It is well that these defects should be pointed out, but it is also well that they should be pointed out without hysterical exaggeration or malicious untruthfulness; while it is of course reprehensible in the highest degree to exploit them in grossly exaggerated form in the fancied interest of an individual or clique of individuals, or for the sake of supplying sensational material to some service or non-service newspaper. The officers of the navy who are guilty of such conduct deserve grave rebuke. They cast discredit upon the service and their conduct is deeply mortifying to every American who believes in the navy and is anxious to uphold its interest and honor.

"There has been so much misrepresentation and exaggeration that I desire you to make me a statement as to the exact facts concerning which there has been dispute. In particular, I desire you to get the opinion of Admiral Converse, who until last spring was Chief of the Bureau of Navigation, and whose high professional standard of

conduct and duty and high professional knowledge and attainments render him peculiarly fit to give judgment.

"I would willingly pass over the conduct of Admiral Brownson because of his fine service in the past if it were not that at a time when a new chief is chosen to succeed him it becomes imperative to stamp with disapproval the behavior which, if followed throughout the navy generally, would literally ruin the navy's efficiency. The question as to which Admiral Brownson took issue with the department I will deal with in a separate letter. It is one as to which there can be entirely legitimate differences of opinion, although, in my judgment, the considerations in favor of the course decided upon are overwhelming.

"But there is no room for difference of opinion as to the gross impropriety of the Admiral's conduct in resigning sooner than carry out the orders of his superior officers in such a matter. The officers of the navy must remember that it is not merely childish, but in the highest degree reprehensible, to permit either personal pique, wounded vanity or factional feeling on behalf of some particular bureau or organization to render them disloyal to the interests of the navy, and therefore of the country as a whole.

"The question whether one officer or another shall command a ship is of little consequence compared with the weakening of all command and discipline which would result if officers were to refuse to serve whenever their tempers are ruffled by adverse decisions on the part of their superiors. Their sole concern should be the good of the service, and, save only lack of courage in actual warfare, obedience and loyalty are the most essential qualities in keeping the service up to the highest standard. The different bureaus of the department, the different branches of the service, must act in co-ordination, and the questions that arise between them must be settled by the authority of the Secretary of the Navy and of the President, under and in accordance with the law enacted by Congress, and the first duty of every officer, whether of the line, of the pay department, of the medical department, or of the construction department, whether in one bureau or in another, is to give immediate and loyal obedience to every lawful command of a superior, and of course above all to the law itself. This duty is incumbent upon all, but it is most incumbent upon those highest in rank, whose example may be of far-reaching effect.

"THEODORE ROOSEVELT."

THE QUESTION OF COMMAND

The second letter of President Roosevelt, given out at the same time, deals with the question on which Rear Admiral Brownson took issue with the Administration. It follows:—

"THE WHITE HOUSE,

"WASHINGTON, January 4, 1908.

"To the Secretary of the Navy:

"Your predecessor in the Navy Department on December 12, 1906, directed that hospital ships should be treated as floating hospitals, and that each such ship should, there-

fore, be placed under the command of a medical officer, the navigation being controlled by a competent sailing master. This order was issued after the most careful consideration by the Secretary of the Navy and by the President of all the reasons that could be adduced for and against it. The case has now been reopened, and the Secretary of the Navy and the President have again listened to and considered all the reasons that could be adduced against putting the order into effect. After the fullest consideration I have determined that the order is right and it is hereby confirmed.

"The hospital ships of the navy will hereafter, unless otherwise directed by Congress, be placed under the control and command of medical officers of the navy, their navigation being exclusively controlled by a competent sailing master and civilian crew, the sailing master having complete responsibility for everything connected with the navigation of the ship. Such a ship is merely a floating hospital. The hospital ship now in question, the *Relief*, has already been used by the United States Army as such. It was then commanded by a medical officer, with a sailing master under him. This arrangement worked well, and it is preposterous to suppose that it will not work as well under a medical officer of the navy as under a medical officer of the army.

"Certain hospital ships in the British, German, Japanese, and Italian navies have already been commanded by medical officers—sometimes fleet surgeons, sometimes Red Cross surgeons. In these navies the only ships of which I have been able to get record were thus commanded, save that in the Japanese Navy the hospital ships at the beginning of the late war were commanded by line officers, but were put under the command of medical officers to avoid all question of possible breach of neutrality.

"In our own service at the close of the Civil War, by general order of February 6, 1865, hospital transports and hospital boats were placed exclusively under the control of the medical department, the hospital ship of the Mississippi being under the command of a fleet surgeon, with an acting master under him as a navigating officer. In the Spanish-American War the hospital ships *Vigilância*, *Relief*, *Missouri*, *Bay State*, and *Olivet* were by various orders (Nos. 103, 122, 188, 212, 273, etc.) placed under the charge of, or the command of, various army surgeons, the order sometimes reading that the surgeon will 'take charge of' the hospital ship, sometimes that he will 'assume command of' the hospital ship, this last being the form of words used in connection with the ship *Relief*, the one that we are now considering. The manual of the medical department of the United States Army for 1906 provides that hospital ships shall be exclusively under the control of the medical department, and the order of the Secretary of December 12, 1906, puts hospital ships under the command of naval surgeons. At present two pay officers are serving in naval hospitals under the command of medical officers of the navy, and the present Paymaster-General of the Navy served under the command of a medical officer in the navy in 1879.

"Military surgeons, including naval surgeons, have special knowledge of hospital ships and they have, in addition, certain military duties of command, organiza-

tion, drills, and discipline, just as do officers of the line, awarding punishments and being guided and governed in these military duties by the same regulations that guide and govern officers of the line.

"The command of a hospital ship should unquestionably be vested in a medical officer and no line officer should be aboard it. The medical officer in such case is simply the responsible head of a large hospital plant, which by reason of his training he is peculiarly fitted to command. It is not his province to navigate the vessel; that should be left to a civilian sailing master; but he, and he alone, is best qualified to respect and guard the neutrality of the ship.

"The absurdity of permitting a line officer to command a hospital ship was shown in the case of the United States hospital ship *Solace* during the war with Spain, when the line officer in command actually attempted to put in a claim for prize money for the part the *Solace* took in the capture of the *Adula* while the *Solace* was flying the Red Cross flag and professing neutrality. On another occasion the *Solace* interfered with the progress of a schooner in the old Bahama channel, so that the United States torpedo boats near by could board and investigate her.

"On yet another occasion, but for the vigilance of the medical officer aboard her, the *Solace* would have carried armed men from New York to Cuba. Her senior medical officer reported the violation of neutrality to the Navy Department and the ship was recalled after passing through the narrows and the armed men removed.

"In the Russo-Japanese War a Russian hospital ship violated her neutrality, and was captured and confiscated by the Japanese. In time of war the presence of combatants—that is, of line officers or crew—would certainly cast a suspicion upon the neutrality of the ship, and no line officer worth his salt would wish to be on such a ship, while it seems incredible that any line officer should desire to have another line officer on board such a ship. Hospitals, afloat or ashore, should no more be under the command of line officers than regiments or warships should be under the command of surgeons; one kind of appointment is quite as inappropriate as the other. Hospital ships should be maintained in time of peace exactly under the same conditions as in time of war. The system has been tried in the army and tried in foreign navies and has worked without a hitch. It is the only system that should be tolerated, and if it fails to work well this failure can only be due to lack of desire to have it work well on the part of those concerned.

"I direct that unless Congress provides otherwise the practice in the navy be assimilated to that now obtaining in the army. In the army the hospital ship is treated as a general hospital, and Article 1467 reads as follows: 'General hospitals will be under the exclusive control of the Surgeon-General, and will be governed by such regulations as the Secretary of War may prescribe. The senior surgeon will command the same.'

"THEODORE ROOSEVELT."

THE ACTION TAKEN BY SECRETARY BONAPARTE

Reference to the records of the Navy Department has brought forth the complete text of the "indorsement"

made by Mr. Bonaparte on the report of the "Joint Board of Medical Officers Convened by the President to consider Improvements in First Aid Dressings and Uniformity of Equipment for the Medical Departments of the Army and Navy in regard to Hospital Ships." So far as can be ascertained from departmental records, Mr. Bonaparte gave no "order" for the placing of a surgeon in command of a hospital ship. The complete text of his "indorsement," copied verbatim from the Department's records, is as follows:—

"Department's indorsement on the report of the joint board of medical officers convened by the President to consider improvements in first aid dressings and uniformity of equipment for the medical departments of the army and navy in regard to hospital ships.

"The department, having carefully considered the original report and the several preceding indorsements, holds, with respect to the matters not covered by its fifth indorsement of June 14, 1906, as follows:

"First—It is expedient to have one hospital ship in commission in time of peace, partly for the benefit of the personnel of the Atlantic fleet, to which such ship should be attached, but mainly as a school for surgeons, nurses, and the Hospital Corps in peculiar duties they would be required to perform in time of war. When such a ship is provided the department holds that the space allotted to sick bays on our more recent battleships and armored cruisers can be and ought to be materially reduced and employed for other purposes. The department does not deem it advisable, under existing circumstances, to construct such a hospital ship, inasmuch as a vessel of this class is already in existence and can be commissioned.

"Second—The department holds that such a ship, when in commission, should be treated as a floating hospital and as such placed under the command of a medical officer, her navigation being controlled by a competent sailing master. In war time the entire crew should be, so far as possible, specially enlisted from civilians as men of the Hospital Corps and for such time only as their services probably will be needed. In time of peace the crew, except such as are engaged in hospital duties, could be organized substantially as is that of a naval auxiliary, but subject to the provision above set forth as to the command.

"Third—A hospital ship should be provided with a chaplain or chaplains of such faith as to be most serviceable to the greater number of patients aboard.

"CHARLES J. BONAPARTE,
Secretary."

"Dec. 12, 1906."

RESIGNATION LETTER "INAUVERTENTLY OMITTED"

On January 6 Admiral Brownson's letter of resignation and the President's acceptance of it were given out at the White House. In giving out these letters it was stated: "The following correspondence was inadvertently omitted from that made public this morning". Admiral Brownson's letter was as follows:—

"DEPARTMENT OF THE NAVY,
"BUREAU OF NAVIGATION,
"WASHINGTON, December 24, 1907.

"Sir: In April last I was detached by your order from the command of the United States Asiatic fleet and ordered to Washington and appointed chief of the most important bureau in the Navy Department, the bureau which under the Secretary is charged with matters relating to the personnel, the discipline, and the efficiency of the fleet.

"This transfer from a command which ranks second in importance afloat to one which is second to none on shore, coming on the eve of my retirement from active service, while not to my personal liking, was deeply gratifying to me, as it appeared to be an evidence of your confidence in my professional ability.

"In order, however, that any effort of mine to maintain a high standard of efficiency and discipline in the service be attended with success, it is absolutely essential that I should have the confidence of the service at large as well as that of higher authority. The efficiency of the fleet can only be maintained when the officers and men feel that the chief of the Bureau of Navigation has the confidence of the Commander in Chief of the army and navy and when a strong military spirit exists in the service. Anything that shows a lack of confidence or that tends to break down this military spirit, which has been the safeguard and principal asset of the navy since its beginning, can but impair such efficiency.

"The recent order placing a medical officer in command of a hospital ship is, in my opinion, and as I have endeavored on several occasions to point out to you, clearly opposed to the intent of the law, is a radical departure from established naval usage and fraught with danger to the efficiency of the fleet, will tend, I believe, to break down the military spirit of the service, and shows a want of your confidence in my advice regarding a matter so vital to the best interests of the service. I am left, therefore, with no alternative but to tender my resignation as chief of the Bureau of Navigation, much as I regret to sever my active connection with the service to which I have been devoted and to which I have given my best efforts for more than 46 years. Very respectfully,

"WILLARD H. BROWNSON,
"Chief of Bureau.

"The President."

The President's letter of acceptance is as follows:

"THE WHITE HOUSE,
"WASHINGTON, December 24, 1907.

"Sir: I accept your resignation, to take effect immediately. You will this afternoon turn over your office to your assistant, Captain Winslow, informing him that he is to act until such time as your successor is appointed and qualifies. Very truly yours,

"THEODORE ROOSEVELT.

"Rear-Admiral Willard H. Brownson,
"United States Navy,
"Navy Department."

THE GILL RESOLUTION

On the following day Representative John Gill, Jr., of Maryland, offered his resolution, which the House passed several days later, directing Secretary Metcalf to furnish the House, for its information, copies of all official letters, reports, and orders connected with the resignation of Rear Admiral Brownson and the assignment of Surgeon Stokes to command the *Relief*. In securing the passage of this resolution, Representative Gill declared it was offered because he understood there were other letters which had not been made public by the Administration. He expressed the belief that correspondence between the President and Rear Admiral Brownson setting forth fully the latter's argument had been withheld from the public.

THE RESPONSE TO THE GILL RESOLUTION.

Responding to the resolution offered by Representative John Gill, Jr., of Maryland, the Secretary of the Navy transmitted to the House of Representatives on January 23 what purports to be all of the data on file in the Navy Department dealing with the resignation of Rear Admiral Brownson and the assignment of Surgeon Stokes to command the hospital ship *Relief*.

The material transmitted comprises:

Rear Admiral Brownson's letter of resignation dated December 24, 1907.

A copy of Special Order No. 61, under date of August 23, 1904, authorizing medical officers in charge of shore hospitals to use the term "in command of" to designate their respective official positions.

General Order No. 84, under date of May 5, 1906, War Department, giving the report of the Joint Board of Army and Navy Medical Officers which recommended the assignment of medical officers to the "command" of hospital ships.

The various departmental endorsements upon that report, including the endorsement of June 4, 1906, by Rear Admiral G. A. Converse, then Chief of the Bureau of Navigation, in opposition to the adoption of such a policy, and former Secretary Bonaparte's final endorsement of December 12, 1906, holding that, when commissioned, hospital ships should be "commanded" by medical officers.

Surgeon General Rixey's letter of November 6, 1907, to Secretary Metcalf, recommending the placing of the hospital ship *Relief* in commission.

Memoranda bearing no date, which was submitted to Secretary Metcalf by Surgeon General Rixey, setting forth "precedents," recent "examples of violation of neu-

trality," argument for "medical officers to command hospital ships," and certain general remarks.

Rear Admiral Brownson's letter of November 18, 1907, setting forth, in twelve typewritten pages, his reasons for opposing the assignment of surgeons to the command of hospital ships.

The order of December 23, 1907, detailing Surgeon Stokes to command the *Relief*.

Surgeon General Rixey's request of December 23, to have the *Relief* commissioned by February 1.

Secretary Metcalf's order of December 30, 1907, detaching Surgeon Stokes from special temporary duty and ordering him to command the *Relief* when commissioned.

Secretary Metcalf's letters of January 8 and 9, 1908, to the Commandant of the Mare Island Yard, directing that the *Relief* be placed in commission by February 1, 1908, as a naval auxiliary, with merchant officers and crew and a surgeon of the navy in command.

President Roosevelt's letters of January 2 and 4, 1908, to Secretary Metcalf, relative to Rear Admiral Brownson's resignation and the hospital ship question. And last,

A letter written January 22, 1908,—only a day before the data were transmitted to the House,—directed to Secretary Metcalf, submitting an answer to Rear Admiral Brownson's letter of November 18, 1907.

THE ATTITUDE OF REAR ADMIRAL BROWNSON

The most important portion of this correspondence thus made public is the Brownson letter, or memorandum, of November 18. It is dignified and unbiased in tone, and sets forth fully the contention of the line officers. This is the communication which the Administration especially refrained from making public, until compelled to do so by a direction from the House of Representatives. It is the letter in which Rear Admiral Brownson declares that "The commissioning of a hospital ship for sea service as recommended by the Surgeon General will be fraught with endless complications." This letter shows that Rear Admiral Brownson objected to the Rixey policy because he regarded the assignment of a naval surgeon to ship command as "contrary to the law," as conducive to "divided responsibility leading to confusion and poor command," and contrary to the best interests of the naval service. The complete argument of Rear Admiral Brownson, as set forth in this memorandum, is such an essential part of the controversy, that the text of the Brownson memorandum to Secretary Metcalf is set forth, as follows:—

[The "Relief" to meet the Fleet at Magdalena Bay]

"The Bureau appreciates the fact that at the present time the necessary accommodations for the sick on the Pacific Coast are inadequate, and, as stated in a recent endorsement by this Bureau on a communication from the Bureau of Medicine and Surgery, the Bureau intends to recommend the commissioning of the *Relief* as a hospital ship, in order that the vessel may be available when the battleships arrive at Magdalena Bay.

"The Bureau earnestly requests that the question of providing the officers and crew for the *Relief*, particularly as regards the command of the vessel, be reconsidered by the Department, and begs to submit the reasons which in the opinion of this Bureau should influence the Department in reversing its previous decision.

"An examination of the accompanying papers shows that the decision of the Department, dated December 12, 1906, which states, among other things, that a hospital ship when placed in commission shall be under the command of a medical officer, appears to be the outcome of the recommendation of a joint board of medical officers of the Army and Navy, convened by order of the Secretary of War. This board was appointed to "consider improvement in the first aid dressing and uniformity of equipment in the medical departments of the two services.

[A Question for Line Officers to Decide]

"While the Bureau freely admits that the question of the medical equipment of a hospital ship is one on which the medical officers of the Army and Navy are eminently qualified to express an opinion, the Bureau begs to submit that the question of manning a sea-going vessel is one which sea line officers of the Navy are best qualified to decide.

"While a hospital ship is a vessel of peculiar international status and can only be employed in time of war for a specific purpose, the fact still remains that whether it is a hospital ship or not, it is a sea-going vessel, and in order to accompany the fleet to fulfill the purpose for which it is designed, it must be navigated and handled in the same seamanlike manner which is required of all vessels to ensure safety on the high seas.

"The Bureau begs to submit that, however qualified medical officers may be in their profession, there is on the other hand nothing in the training of a medical officer which fits him to command a sea-going vessel.

[Hospital Ships not exempt from Navigation Dangers]

"The contention of the Surgeon General that a medical officer should command a hospital ship appears to be based entirely upon the assumption that such a ship is a floating hospital, as he states: 'It must be borne in mind that a hospital ship is a floating hospital and that the most finished professional training in navigation, ordnance, and seamanship does not render line officers well fitted to command hospitals.'

"The Bureau is well aware that it does not require professional training in navigation, ordnance, and seamanship to command a hospital, provided such hospital is located on shore or even if such a hospital were a hulk

securely and safely moored and not required to move; but the fact must not be lost sight of that the use to which a vessel is put has no effect whatever in lessening the dangers which will be encountered in navigating such ship in all kinds of weather and under various circumstances.

"It requires just as skillful a navigator to pilot a hospital ship as it does to pilot a man-of-war, a mail steamer, or a yacht. The difficulties of pilotage, navigation, and handling a vessel are wholly independent of its internal arrangements or the uses to which the vessel may be put.

[*Not Floating Hospitals, but Sea-Going Vessels*]

"The statement of the Surgeon General that a hospital ship 'is not a man-of-war but a hospital' does not give a complete statement of the case. Without doubt a hospital ship is not a man-of-war, but has a peculiar status, which is clearly defined by the Geneva Convention. On the other hand, to call it a hospital does not fully describe the ship. It would be more nearly correct and descriptive of its true character to state that a *hospital ship is a sea-going vessel having a large hospital on board*, and it is for the general administration, navigation, and handling of the *sea-going vessel* that a sea line officer should be ordered to command. As to the control and administration of the medical department of such a vessel, existing regulations give the medical officers all necessary authority to control and care for their department on board ship.

"The Surgeon General again states that 'the command of the medical officer should be absolute' and that the captain should not be a naval officer, but should belong to the merchant marine and should have entire control of the navigation of the ship and of the civilian crew and regulate discipline and matters pertaining to them. It would seem from this statement that in the opinion of the Surgeon General the navigation, safe conduct, and general administration of a sea-going vessel are secondary as regards the responsibilities of command.

"Telegraph operators or cable engineers are not put in command of cable ships, nor are postmasters put in command of mail steamers. A battleship can with propriety be called a floating fort, but artillery officers are not fitted for the command of them. It must not be forgotten that a ship is an inanimate object and requires at all times a competent officer in command to ensure the safety of the vessel at sea.

"Long experience with merchant crews and officers on board naval colliers, tank ships, transports, supply vessels, etc., shows that officers of the merchant marine do not perform this duty as efficiently as naval officers.

[*Methods of manning Naval Auxiliaries*]

"Some years ago on the Asiatic Station the auxiliaries were manned in three different ways. First, a number with full naval crews. Second, others with merchant crews; and, third, several with a merchant crew and officers and one line officer of the Navy in command. In addition to the line officer there was a paymaster.

"As the result of experience with the various systems, all in force at the same time and under similar conditions, officers who have had experience with naval auxiliaries

agree that the most efficient organization is obtained when these vessels are manned with a full naval crew and it is only the fact that at present there is such a shortage of officers and men that naval auxiliaries are not so manned.

"Of the three systems above noted, that which caused the greatest number of complications and was the least efficient, *i. e.*, a naval officer in command with a full merchant crew and officers. On board such vessels the crew and officers are amenable only to the navigation laws of the United States. They are shipped and discharged in the presence of a United States Naval Officer or the Shipping Commissioner, or in a foreign port in the presence of a United States Consul or U. S. Naval Officer. Neither the U. S. Navy Regulations nor the Navigation Laws of the United States contemplate any division of authority as exists on board a vessel so manned.

[*The Colliers "Iris" and "Nanshan"*]

"The following is an extract from a letter addressed by the Commander-in-Chief of the U. S. Asiatic Fleet to the Naval Officers in command of the Colliers *Iris* and *Nanshan*, defining the status of the officer in command and the Master:

"The naval officer in command will be held responsible for the navigation, safety, movement, preservation, and cleanliness of the vessel to which he is attached, and he shall relieve the master of such responsibilities whenever he finds it necessary to assume direct control himself.

"There are peculiar conditions existing on the Government vessels carrying merchant officers, with naval officers on board who have been placed there in the interest of the Government. By merchant laws all punishments, shippings, and discharges of crew, must be made by the master under existing laws. In addition to these, there are many functions on board these vessels that may not be exercised by the naval officer in command. But the naval officer in command is to be obeyed in all orders that he sees fit to give, and he will be held responsible for any orders promulgated by him that are incompatible with the merchant laws of the United States, except as set forth in paragraph 1 of this letter, which are deemed essential for the best interests of the Government.

"The foregoing instructions being absolute, the naval officer in command will endeavor to arrange matters, through the Master, so that everything may work harmoniously, and that the Master may not seem to lose any of the privileges or authority due him by the merchant shipping laws of the United States.

"A copy of this letter shall be furnished the master of the vessel you command. He must agree to the conditions herein set forth, or be discharged from his position, if he is not satisfied with these decisions.

"The following letter was also addressed by the Commander-in-Chief to the masters of these vessels:

"A commissioned line officer of the United States Navy having been ordered to command the vessel of which you are master, you are hereby informed that all functions, duties and responsibilities regularly belong-

ing to you as a duly installed master, under the laws governing the Merchant Marine of the United States, are retained by you."

"Notwithstanding the fact that these instructions appear to be explicit, complications constantly arose, not only as regarding the navigation of the vessels, but also in respect to the administration of affairs including relations with the crew.

"As regards the navigation of the vessel, the case of the *Iris* running ashore on Sikior Island may be cited, and the case of a disturbance created by the Second Officer of the *Nanshan* in the harbor of Hong Kong may also be mentioned as regards the relations of the naval officer with the crew.

[*The "Iris" was run Ashore*]

"A brief description of both these incidents may be of interest. The U.S.S. *Iris* was, in 1901, making passage from Cebu to Tacloban in the Philippine Islands, and ran ashore on Sikior Island. A board appointed to investigate the grounding found it due to the ship's over-running the patent log, westerly current and leeway, thick weather, and poor judgment in setting the course. The Board also found that the naval officer in command "Did not take all precautions to assure himself of the proper navigation of the ship, but owing to the anomalous position of a naval officer on board the *Iris* with a merchant crew and officers, subject to the orders of the master, and owing to the duties and responsibilities, and authority given the master by the United States laws for the Merchant service, the board is of the opinion that no further action should be taken in the case of ———, but that Master ——— should be discharged."

"Owing to the fact that there was divided authority on board the *Iris*, the Commander-in-Chief and the Department approved the finding of the Board. In this connection it may be stated that the naval officer was an officer of experience and unquestioned professional ability.

[*The Case of the "Nanshan"*]

"The case of the *Nanshan* was as follows: The *Nanshan* was at anchor in the harbor of Hong Kong; the Second Officer during the evening became intoxicated and noisy. The naval officer in command sent word to the master for him to pipe down. This the 2nd officer not only declined, but failed, to do. After several warnings, the naval officer directed the master to put the 2nd officer in irons. This the master declined to do, stating that his crew and officers were shipped under the Navigation Laws, which prohibited such action on his part while the vessel was in port. The naval officer then asked the master what he would do were he in actual command of the vessel without a naval officer on board. The master replied that he would send for the harbor police. The naval officer then directed him to request the Harbor Police to take charge of the 2nd officer. The Harbor Police declined to interfere, as the *Nanshan* was a government vessel under the command of a naval officer. At this juncture the 2nd officer retired to his room, locked the door, and threatened to shoot anybody who tried to force an entrance. After firing four shots through the door, the naval officer took

the law into his own hands, broke down the door and disarmed the 2nd officer.

"It will be noted from the foregoing that a situation existed on board the *Nanshan* which no one was legally competent to cope with.

"Owing to the legal complications involved, the only action taken was to discharge the 2nd officer the following day in the Harbor of Hong Kong.

[*The Essential Principles of Ship Administration*]

"If a hospital ship were merely a floating hospital, as the Surgeon General states in his endorsement, and the ship were securely moored and not called upon to move from point to point, it would perhaps be well not to have any sea line officers on board. It would appear, however, that in addition to the navigation of the vessel and ship administration connected therewith, the discipline of the crew has been entirely lost sight of. Both the law and the Navy Regulations state that officers of the line exercise military command. On board a hospital ship when in commission for sea service and cruising in company with a fleet, there will always be a certain number of enlisted men of the Navy, Marine Corps, and, perhaps, of the Army, who are convalescent, many of them practically well and nearly ready for duty.

"The temptation for these men to commit infractions of discipline will be various on board a hospital ship, and in addition to the ordinary infractions they will be liable to get into difficulties with the merchant crew of the vessel; the latter (if the vessel is manned in accordance with the recommendation of the Surgeon General) are amenable only to the navigation laws of the United States. The Bureau fails to see how there can be any complete control over the discipline of the personnel on board a hospital ship when part of such personnel is amenable only to one set of laws, the other to the Navy Regulations; the officer in command being an officer who by law is forbidden the right of exercising military command except in his own corps, the master of the ship being a civilian with no legal right to control men in the Navy.

[*The Cardinal Points of Military Command*]

"Officers intrusted with the command of United States vessels, whatever their rank, must, while properly in such command have full command, authority, and precedence over all officers and persons of whatever rank, serving in such vessels. The efficiency of every military organization requires of the commanding authority, besides the general duties of command and direction, the additional duties of organization, police, and inspection; all these appertain to and go with the command. The officer in command of a vessel is not authorized to delegate his power, except for the carrying out of the details of the general duties to be performed by his authority. The command is his and he can neither delegate the duties of it to another nor avoid its burdens, nor escape its official responsibilities which cannot be assumed by or fall upon any other person.

[*Citations of the Statute Law*]

"By the force of naval law, and regulations made in conformity therewith, the above principles are established

and exist as essentials of all naval military service, without which there can be neither command, discipline, nor responsibility.

"The following extracts from the Statute Law of the United States have direct bearing on the exercise of military command by medical officers:

"The Act of Congress approved March 3, 1871, Statutes at Large, Vol. 16, page 537, states:

"Commanding Officers of vessels of war and of naval stations shall take precedence over all officers placed under their command."

"Section 4 of the Act of Congress approved August 5th, 1854, fixing the rank of Medical Officers of the Navy, states:

"This order confers no authority to exercise military command and no additional right to quarters."

"Section 7 of the 'Personnel Act' (which became a law March 3rd, 1899) in amending the Revised Statutes so as to confer upon staff officers positive rank with the line, contains the limiting clause:

"But officers whose rank is so defined shall not be entitled in virtue of their rank to command in the line or in other staff corps."

"These laws are prohibitive of the full exercise of command by a medical officer, and he could not, therefore, legally command the paymaster, the crew, the commissary force, etc., which the vessel, as an adjunct to the fleet or acting singly, must necessarily have.

[The Two Systems of "Command"]

"A comparison of the system advocated by the Surgeon General and that recommended by this Bureau as regards discipline speaks for itself. Assume that a hospital ship (manned as recommended by the Surgeon General) has on board:

- (a) Merchant crew and officers;
- (b) Hospital Corps of the Navy;
- (c) Enlisted men of the Navy (patients);
- (d) Enlisted men of the Marine Corps (patients);
- (e) Enlisted men of the Army (patients);
- (f) Enlisted men of the Navy (commissary branch);
- (g) Officers of the Navy (patients);
- (h) A pay officer.

"The Merchant Crew and officers are amenable only to the navigation laws of the United States and subject only to the orders of the master.

"The Hospital Corps men are amenable to Navy Regulations and subject to orders from the medical officers, but in case of a disturbance they would be subject to the orders of the senior line officer present (should there be one embarked as a patient).

"The enlisted men of the Navy, Marine Corps, and Army are all amenable to the Navy Regulations while embarked, but the law and regulations do not permit a medical officer to exercise military command nor do they permit the civilian master to enforce Navy Regulations.

"With a line officer of the Navy in command (with a full Navy crew and officers) any situation that might arise is not only fully covered by the Navy Regulations

and the officer is one who by his training is fully competent to handle the situation.

"The Surgeon General states that 'with a medical officer in command occasions for conflicts and differences of opinion on questions of expediency and methods of procedure affecting the ship as a hospital would be removed.'

[Conflict of Authority]

"The Navy Regulations clearly define the exact status of medical officers on board ship as regards their duties, prerogatives, and responsibilities; with a line officer in command no situation can arise which is not fully covered by the Regulations, but with a medical officer in command a situation is at once created which is not only contrary to existing law, but which has no precedent in our service.

"It appears clear to the Bureau that by removing the line officers, the 'occasion for conflicts of authority' will be multiplied instead of diminished.

"Revised Statutes of the United States define the master of a vessel as follows:

"'In the construction of this Title (R. S., 4501-4613), every person having the command of any vessel belonging to any citizen of the United States shall be deemed to be the "master" thereof.

"The word "master" as used in this Title (R. S., 2517-3129), may include any person having the chief charge or command of the employment and navigation of a vessel."

"From the foregoing it will be seen that the Revised Statutes regard the master as entrusted with the *chief charge or command* of a vessel and the law holds him responsible for the enforcement of certain rules and regulations, not only in relation to the navigation of the vessels, but in enforcing discipline; the law, however, only contemplates that he will be required to enforce discipline as regards civilians.

"The Surgeon General again states, 'the discipline of the medical branch should be in the hands of the medical officer in command.' The Surgeon General seems to have overlooked or disregarded the question of the control of the Paymaster, the disciplining of the enlisted men embarked in the hospital ship as patients, and the members of the crew of the vessel. The Bureau takes strong exception to the following statement of the Surgeon General:

"'The command is eminently a non-combatant one, is consequently not desired by officers of the line, and falls naturally to a medical officer whose knowledge and experience in all matters relating to the administration of quarters for the sick and the treatment and handling of patients fit him for the command of a ship which is not a man-of-war, but a floating hospital.'

"The Bureau is of the opinion that the above is not a logical deduction, for were it so, that 'knowledge and experience in all matters relating to the administration of quarters for the sick and the treatment and handling of patients' fit a man for the command of a seagoing vessel (employed as a hospital ship), it would also follow that

the manager of a large well-run hotel would be competent to command a large trans-Atlantic liner engaged in the passenger trade, which is also not a man-of-war, but a floating hotel.

"The Bureau concurs with the Surgeon General in the opinion that 'experience in such matters is a better guide than theory' and begs to quote from the annual report of the Surgeon General for the year 1898:

"The *Solace* is fitted out under the requirements of the Geneva Convention and flies the Geneva cross flag. She is the pioneer in her work, and indicates a step in advance that it will become the United States to take.

The vessel has been fortunate in her personnel. Commander Dunlap is an ideal commander and the medical officers of the vessel, Surgeon Streets and Passed Assistant Surgeons Stokes, Smith, and Bogert, have shown themselves thoroughly competent and efficient in caring for the many sick and wounded who have been under their charge. Three hospital stewards, one of whom was a skilled embalmer, eight trained nurses, a cook, four messmen, and two laundrymen were especially designated in the medical department."

The communication of Rear Admiral Brownson then quotes as follows from the report of Surgeon Streets, the senior surgeon on board the *Solace* in 1898:—

"I cannot give too much credit for the good results obtained by my able assistants, P. A. Surgeons Charles F. Stokes, G. Tucker Smith, and Edward S. Bogert. Every member of the Hospital Corps has performed his duties in the most efficient manner. Every effort of mine has been cordially seconded by Commander A. Dunlap, U. S. N., the Commanding Officer of the *Solace*."

THE ADMIRAL'S CONTENTION IN A NUTSHELL

Continuing, Rear Admiral Brownson closes his memorandum as follows:—

"The experience gained with naval auxiliaries on board of which divided authority existed is fully set forth in the enclosed report from the Senior Squadron Commander of the Asiatic Fleet, and has a direct bearing on the present point at issue. It would appear, therefore, that if, as stated by the Surgeon General, 'experience in such matters is a better guide than theory,' the result of experience in our Navy shows beyond a shadow of a doubt that naval auxiliaries (of which hospital ships are not the least important) are least efficient when manned as recommended by the Bureau of Medicine and Surgery.

"From the foregoing it will be apparent that the commissioning of a hospital ship for sea service as recommended by the Surgeon General will be fraught with endless complications the chief of which are as follows:

"1. It is directly contrary to the law for a medical officer to exercise military command in any other than his own corps.

"2. Divided responsibility leads to confusion and poor administration.

"3. Experience both with the *Solace* in the Spanish-American War and with auxiliaries on the Asiatic Station shows conclusively that the only organization for the fleet auxiliary is to have a full naval crew and officers.

"4. A seagoing ship to be efficient must of necessity be commanded by a seagoing officer."

"In conclusion, the Bureau has to state that this is a matter of vital importance to the Naval Service, and it is requested that the Department's former decision be revoked and that instructions be issued for the commissioning of the *Relief* with a full Navy crew and officers."

ADMIRAL CONVERSE OPPOSED TO SURGEON-COMMAND POLICY

One of the significant disclosures made by the response of the Navy Department to the Gill Resolution is the fact that Rear Admiral George A. Converse (retired), who was Rear Admiral Brownson's predecessor in the office of Chief of the Bureau of Navigation, "officially" opposed the recommendations of Surgeon General Rixey for the assignment of surgeons to the command of hospital ships. Rear Admiral Converse went even further than this and opposed the proposition to commission hospital ships in time of peace as both inadvisable and unnecessary.

The official record of the attitude of Rear Admiral Converse is set forth in that portion of the transmitted correspondence which deals with the genesis of the shore hospital and hospital ship command propositions in the Department. On August 23, 1904, medical officers in charge of naval hospitals on shore were, by Special Orders signed by former Secretary Charles H. Darling, authorized to use the term 'in command of' instead of 'in charge of,' to designate their respective positions. Having obtained permission to "command" shore hospitals, the Surgeon General turned his attention toward seeking similar authority for hospital ships.

Accordingly, orders were issued in January, 1906, by direction of the President, for a Joint Board of Army and Navy "Medical" Officers to meet in Washington, to consider "improvements in first-aid dressings and uniformity of equipment for the medical departments of the two services." Surgeon Charles F. Stokes was one of the original members of this board, but he was relieved from that duty February 12, 1906, by Surgeon J. D. Gatewood of the Navy, by direction of the convening authority. The board's report, under date of February 17, 1906, recommended that each hospital ship have "one medical officer in command of ship."

After giving the text of this report, the correspondence and data sent to the House make public a series of nine endorsements, in 1906, upon "a report" upon the hospital

ship question. The report upon which these endorsements were made was, however, manifestly omitted from the data sent to the House, because the very first of the endorsements transmitted to Congress, this endorsement being that of Secretary Bonaparte, dated April 19, 1906, says, "The original of the within mentioned report, with endorsements thereon by the Surgeon General, U.S.A., the Chief of Staff, U.S.A., and the Honorable the Secretary of War, has been returned to the Honorable the Secretary of War, inviting attention to the 7th endorsement thereon of the Surgeon General of the Navy."

Neither the report in question nor any of its endorsements were forwarded to Congress, although the Gill Resolution called for *all* data on file in the Department relating to the subject. It is clear that the nine endorsements sent to Congress constitute another set of endorsements, for the 7th one of these endorsements is of later date and was an endorsement written, not by the Surgeon General, but by Secretary Bonaparte. The second of the series of transmitted endorsements shows that on May 11, 1906, Surgeon General Rixey recommended to Secretary Bonaparte the approval and publication to the naval service of the recommendations of the Joint Board.

THE "ENDORSEMENT" BY REAR ADMIRAL CONVERSE

Secretary Bonaparte, on May 14, 1906, referred the matter "to the Bureau of Navigation for comment." This gave Rear Admiral Converse a legitimate right to dispute the propriety of adopting the Rixey recommendations; and on June 4, 1906, Rear Admiral Converse wrote the following, or "fourth endorsement" upon the papers:—

"The Bureau has given careful consideration to the report of the Joint Board of Medical Officers of the Army and of the Navy, and to the recommendation thereon by the Surgeon General as contained in the second endorsement, and approves of the several suggestions and recommendations with the exception of that part which relates to hospital ships for the Navy.

"The Bureau fully recognizes and appreciates the necessity of having ample and suitable accommodations for the sick on board all vessels and the extent to which the efficiency of the ship is dependent upon the proper care and protection of the health of the personnel, and believes that this point has been reached, if not even exceeded, in the large hospital accommodations now fitted aboard our most recently commissioned new vessels, which to a very considerable extent makes each of them a hospital ship in itself and well capable of caring not only for her own sick but also that of accompanying smaller vessels which may not be so extensively fitted, should occasion require.

"The question of having special hospital ships for the Navy in commission in time of peace has received the con-

sideration of the Department on prior occasions, and, if not decided adversely, has, at least, not met with favorable action. Upon this question of special hospital ships in time of peace the Bureau finds no reasons in the within report for causing a change in its opinion heretofore expressed at various times upon the subject, and therefore renews its recommendations as to the inadvisability and lack of necessity for commissioning, in time of peace, a hospital ship for the naval service. The Bureau also fully concurs in the opinion expressed by the General Board in its No. 420-2 of November 23, 1904, recommending against the placing in commission of hospital ships in time of peace, and to which communication the attention of the Department is invited.

"Referring to that part of the within report in which the Board in its recommendation specifies the detail of the personnel for hospital ships, the Bureau cannot concur in the recommendation that such ships be placed in command of a medical officer of the Navy, and that the personnel, other than medical officers, be composed entirely of civilian officers and men. It is necessary in enforcing discipline and maintaining efficiency that the officers and crew of hospital ships, as well as of other vessels belonging to the Navy, should be subject to the laws and regulations governing the Navy, and that the officers entrusted with the command of these vessels should be those whose experience and training qualifies them for commanding and navigating the vessels under all conditions of weather and unforeseen contingencies, and the Bureau, therefore, seriously doubts the advisability or wisdom of placing seagoing vessels under the command of medical officers whose professional training, however proficient in the practice of medicine and surgery, has not been such as to render them well fitted for the command of vessels always in close communication with the fleet, and her commanding officer should be one in whom the Admiral could rely for the proper handling of the ship as an adjunct of the fleet and whose knowledge of naval matters, signals, and ready and prompt obedience to orders, could at all times be not only relied upon but efficiently performed. Finally, the military and other professional insight afforded the persons on board hospital ships of the fleet operations, plans, bases, in time of peace, and particularly so in time of war, might be used to our great injury and result most unfortunately for the success of our forces were such opportunities to gain military information made available to persons not of the Naval Service and not subject to its discipline, as would be the case where the personnel of hospital ships composed of civilians."

SECRETARY BONAPARTE SEEKS MORE LIGHT

The endorsement of Rear Admiral Converse was made June 4, 1906. Ten days later Secretary Bonaparte referred the comment of Rear Admiral Converse to Surgeon General Rixey. In his endorsement of June 14, 1906, doing this, Secretary Bonaparte approves the several recommendations and suggestions of the Joint Medical Board "with the exception of those relating to

hospital ships for the Navy, and directs that effect be given to the recommendations so approved as soon as suitable occasion shall arise." With respect to that portion of the report relating to hospital ships, Secretary Bonaparte's endorsement says:—

"The Department defers action thereon; and returns the papers to the Bureau of Medicine and Surgery for further consideration of the comments contained in the fourth endorsement [that of Rear Admiral Converse] and especially of the following subjects:

"The advisability of maintaining such ships in time of peace.

"The advisability, whether in time of war or in time of peace, of placing a medical officer in command of a ship of this character, in so far as this will give him control of her navigation.

"The advisability of composing the crew of such a ship entirely of civilians."

In connection with the last mentioned subject, Secretary Bonaparte asked for Surgeon General Rixey's views on the following questions:—

"Ought not the complement of such a ship to include two or more chaplains?

"Would it not be advisable, and probably necessary, to have some officer or officers of the Pay Corps aboard?

"Would civilians be neutralized at sea under the Geneva Convention because employed on a hospital ship? And, if there is any doubt as to this, might it not be expedient to enlist the entire crew as members of the Hospital Corps?"

More than three months later, on or September 24, 1906, Surgeon General Rixey responded in writing to these questions. It is a lengthy communication, given in full in the data laid before Congress. He answered all of Secretary Bonaparte's questions affirmatively, and this additional endorsement by Surgeon General Rixey was referred to Rear Admiral Converse for "for further comment." Rear Admiral Converse's response took the form of what is termed the 8th endorsement, dated September 27, 1906, in which he adhered to his former attitude, saying:—

"The Bureau does not desire to make further comment on the subject matter contained herein and, after considering the contents of the 6th endorsement hereon, it sees no reason for modifying its views, as previously expressed in its 4th endorsement, dated June 4, 1906."

Nothing more was done until December 12, 1906, when Secretary Bonaparte, under that date, added the final, or 9th, "endorsement" in which he held that it was expedient to have one hospital ship in commission in time of peace for the benefit of the personnel of the Atlantic Fleet, that "such a ship, when in commission, should be treated as a

floating hospital and, as such, placed under the command of a Medical Officer, her navigation being controlled by a competent sailing master," and that the hospital ship should be provided with one or more chaplains.

No "order" was issued by Mr. Bonaparte. He contented himself with adding at the end of his endorsement the statement, "No immediate action by the Department is deemed necessary in the premises, but its conclusions will be communicated to the Bureaus interested and to the Joint Board of Medical Officers." Mr. Bonaparte was transferred to the Department of Justice only a few days after writing this endorsement.

SURGEON GENERAL RIXEY'S NEW LETTER

After the adoption of the Gill resolution and its receipt by Secretary Metcalf, directions were given for the assembling of such data as were to be transmitted to Congress in response to its directions. After this had been done, Surgeon General Rixey was permitted to prepare a statement in the form of a letter to Secretary Metcalf. This was intended as a response to the Brownson memorandum which was about to be made public. The Rixey letter was written by the Surgeon General after he had been permitted to study the Brownson memorandum. The date of the Rixey letter is January 22, 1908, and the date of the transmission of the response to the Gill resolution was January 23, 1908. The Gill resolution did not ask for continuation of the correspondence. It merely directed the Department to forward to Congress all data "on file" in the Navy Department respecting the resignation of Rear Admiral Brownson and the commissioning of the *Relief* as a hospital ship with a surgeon in command. The text of this additional Rixey letter is as follows:—

January 22, 1908.

Sir:

Admiral Brownson's written representations in regard to the hospital ship have just been brought to my attention, and as they are of such a character as to lead to serious misunderstanding of the matter without further explanation, the Bureau begs to submit the following statement in answer thereto, and respectfully requests that the same be transmitted to Congress in connection with the other papers called for by the Resolution:

First: I have never asked that medical officers be entrusted with the navigation of Hospital Ships. On the contrary, I have asked that under the Bureau of Navigation a Sailing Master and crew be selected and held responsible for the navigation and care of the ship. All orders to and from the Sailing Master should pass through the senior surgeon, who will be in command. I asked for the medical officers of the Navy exactly the same status as was and is given to the medical officers of the Army on hospital ships. The ship now in question, the *Relief*, as

a Hospital Ship was commanded by medical officers of the Army. There can be no question but that the medical officer of the Navy is as well qualified for this work as is the medical officer of the Army.

Second: The neutrality of the Hospital Ship demands that line officers and a fighting crew should not be put aboard her except when on the sick list, when they are a part of the medical corps until discharged from the sick list and from the hospitals or hospital ship.

Third: I agree with Admiral Brownson that the pilotage, navigation, and handling of the hospital ship should be as well done as is that of any other ship, but I contend, and the facts show, that all of this has and can be done as efficiently by a merchant master and sailors as by a line officer and a fighting crew. For example, see Admiral Brownson's statement in regard to auxiliaries and the history of the transports run by the Army at present and in past wars. Admiral Brownson, after citing the difficulties encountered in the Navy with different types of crews, states: "As a result of experience with the various systems, all in force at the same time and under similar conditions, officers who have had experience with the Naval auxiliaries agree that the most efficient organization is obtained when these vessels are commanded by a full Naval crew, and it is only the fact that at present there is such a shortage of officers and men that Naval auxiliaries are not so commanded." In reply to this I wish to call your attention to the fact that line officers and naval crews would jeopardize or destroy neutrality in time of war, and moreover, every fighting man of the Navy will be needed for our fighting ships in war. And still further, I wish to submit that a Naval crew who would wish to be on a Hospital Ship when there was fighting to be done, would, to say the least, be most unsatisfactory as Naval men of the fighting branch.

Fourth: Admiral Brownson refers to orders issued and difficulties encountered in the Navy with civilian crews and masters, and specially cites the cases of the *Iris* and *Nanshan*. The Army Transport service is noted for its efficiency, and it is navigated by a civilian crew and master without a Bureau of Navigation to select and equip; how much better ours should be under such supervision. In the case of the *Iris* she was not saved by a line officer who was on board, and he was not punished, but the Master was dismissed, as he should have been. In the case of the *Nanshan*, cited by Admiral Brownson, the second officer on board, who was drunk and disorderly, if she had been a Hospital Ship, would have been treated as an insane patient and he would have been locked up promptly until he could have been dealt with under regulations governing such cases.

Fifth: In regard to command in our shore hospitals and hospital ships, there can be no question as to the medical officers having all the authority necessary to enforce their commands. Such authority is exercised every day in all of our city hospitals on shore over line officers and enlisted men so long as they are on the sick list and in the hospital, also over civilian employees and all that come into the hospitals, in other words, we absolutely command in our hospitals ashore. This question was settled by order of the Department in Special Order dated

August 23, 1904, and it was opposed just as earnestly by the Bureau of Navigation as is now our present request in regard to command of our hospital ships. This Bureau has found that this sustaining of the Bureau in regard to command in the shore hospitals has been most satisfactory, and just here I wish to bring out clearly that we are exercising the right of command according to law in our own corps, and Admiral Brownson's contention that a line officer on the sick list in a Hospital Ship does not belong to that corps is not well taken. If a line officer sick in our hospital or on a hospital ship is not under the authority of the medical officer in command, he would be a most dangerous person to put in a hospital or aboard the hospital ship. He might be out of his head or insane; and as long as he is on the sick list, it is absolutely necessary that he should be under the control of the medical officer, and there has been no question of this in the past in my thirty odd years in the Navy. A patient going aboard the Hospital Ship remains on the sick list until he is discharged from that ship, and during this time he is absolutely under the control of the Medical Officer in charge.

Sixth: The Navy Regulations would be the same on the Hospital Ships as in any of our hospitals ashore and in any other portion of the Navy, and punishment for the infraction of discipline would be just the same and according to regulations. There is no question of the control of the Paymasters now serving under medical officers in our Hospitals nor of the enlisted force. Why should Admiral Brownson fear for the control of them on a Hospital Ship? In conclusion, Admiral Brownson refers to the *Solace*, the only hospital ship mentioned by him, and the only one that he can find that was ever commanded by a line officer, whereas I have cited a number of them in our own and in foreign navies which have been commanded by medical officers. The *Solace*, as I have already cited, destroyed her claim to neutrality on several occasions, and even laid claim to prize money for having taken part in offensive operations. The importance of this contention of Admiral Brownson does not stop with the Hospital Ship. In order to have an efficient personnel selected to watch over and ever ready to man the guns of our Navy and handle our fighting ships, with the assurance that when our men are cut down they will be cared for, it is necessary that the medical officers' authority must be recognized in all matters of sanitation. There is no question of it ashore, and has not been since 1904, although the line fought just as hard to prevent the use of the word "command" in our hospitals ashore as it is now fighting to prevent the use of the word "command" in our hospital ships at the present time. In conclusion, I have to submit that the hospital ship should be run according to regulations as laid down a year ago by the Secretary of the Navy, and this should be done in time of peace and tried to the satisfaction of the Department and the country, so that in time of war the medical officers may know where they stand in the care of the thousands that may be entrusted to their care.

Very Respectfully,

P. M. RIXEY,
Surgeon General U. S. Navy.

The Secretary of the Navy.

CONGRESS AND THE NAVY

Greater interest over naval affairs has been manifested during the opening days of the Sixtieth Congress than by any Congress since the close of the Spanish-American War. There is a general realization that the parting of the ways has now been reached in naval administration and construction, and that it behooves Congress to qualify itself for intelligent action by thorough consideration of every phase of the service requiring legislation. The transfer of the Atlantic Fleet to the Pacific Ocean, the widespread belief that the American navy is destined to take a prominent part in the working out of the politics of the Pacific, the discussion on both sides of the Atlantic of the relative values of the naval forces of Japan and the United States, the Reuterdahl article and others regarding the character and manner of the building of American battleships, the significant incidents connected with the controversy over the assignment of Surgeon Charles F. Stokes to the command of the hospital ship *Relief*, and the attitude of Senator Eugene Hale of Maine, who has been arbiter of the powerful Senate Naval Committee for many years,—these are lights and shades of the Congressional situation less than sixty days after the assembling of the House and the Senate.

SCORES OF BILLS INTRODUCED

In both branches of Congress many bills have been introduced dealing with important features of the naval situation. There have been several measures offered in the Senate and the House providing for "reorganization" of the Department; and, whatever the merits or shortcomings of these propositions, it is perhaps significant that they strike at present methods of naval administration and construction. The most important of these bills, on account of the dramatic manner of its introduction, the broad ground covered by its text, and the influence of its sponsor, is that of Senator Hale (S. 3335), introduced January 9, 1908, "To increase the efficiency of the personnel of the Navy and Marine Corps of the United States."

THE PROPOSITION OF SENATOR HALE

It is no exaggeration to refer to the manner of the introduction of the Hale Bill as dramatic. Bills are generally read only by title when presented in the Senate. Senator Hale adopted another method, one so unusual in the Senate that it immediately attracted widespread atten-

tion and comment, and indicated his intention of pursuing a vigorous policy toward naval matters. Instead of offering the bill in the usual form, Senator Hale asked that its full text be read to the Senate "as the matter is one of great importance and has excited much interest." The bill covers a wide range of subjects and introduces some novel, and what are regarded by many as several exceedingly dangerous, features into the controversy. Senator Hale says that he regards his bill as "far from perfect," but that he tried to formulate the measure as a basis for naval legislation, and also for investigation before the Naval Committee.

SENATOR TILLMAN'S ACTIVE INTEREST

Senator Tillman of South Carolina served notice, immediately after the holidays, that, as senior Democratic member of the Senate Naval Committee, deeply interested in the welfare of the Navy, he intends to participate actively in all matters before the Senate pertaining to the Navy. Senator Tillman will use his influence to bring about a complete investigation of the charges made in the Reuterdahl article, and expects to present witnesses before the Senate Naval Committee when it undertakes serious consideration of the Hale Bill. Senator Tillman inquired of Senator Hale, when the latter's bill was introduced, whether, in the consideration of that measure by the Committee, "an opportunity will be given to have all the facts brought out relating to the personnel and the controversy in the Navy Department, the articles in the magazines, and the other charges, the crimination and recrimination, that are floating back and forth."

"Will we in the Naval Committee be able to get at the facts?" he inquired of Senator Hale. "I have an idea of introducing a resolution instructing the Naval Committee to inquire and report upon the subject, but if we can reach the facts by this method it is just as satisfactory to me."

"I have been asked," responded Senator Hale, "a great many times by people having a most intelligent interest in the Navy, whether, in view of recent transactions in the Navy Department and the great public interest in these transactions, I did not propose to introduce a resolution of investigation. The subject undoubtedly is worthy of the direct attention of Congress. Looking over the matter as carefully as I have been able to do, I have selected the method of action covered by this bill, involving full consideration and discussion by the Senate, instead of

submitting the Department to an investigation upon a Senatorial inquiry. I have thought it better to frame a bill, which I do not claim to be perfect, but which will cover, as I think, the many controversies,—not only that which has arisen and sharply attracted public attention of late, but old troubles and jealousies between the different grades and ranks of the Navy Department."

THE HALE BILL

On the day of the introduction of his bill, Senator Hale entered upon a general explanation of its features. The character of the bill is so important in its bearing upon the naval situation, since it will undoubtedly constitute the basis of inquiry and legislation, that it is perhaps best to present the complete text:—

"Be it enacted, etc., That the entire business of the Navy Department under the Secretary of the Navy shall be transacted by the bureaus and offices of the Department as now existing, and all reports and recommendations of such bureaus and offices shall be made direct to the Secretary of the Navy. No permanent board of any kind shall hereafter be appointed by the Navy Department or continued in operation unless expressly provided for by law after the passage of this Act, but from time to time the Secretary of the Navy may convene boards for temporary service connected with the pending business of the Department.

"Sec. 2. That officers in the various staff corps of the Navy shall hereafter have actual rank and title as now established for the staff corps of the Army. Such officers of the staff corps of the Navy shall at all times have the title and designation of their rank, and new commissions in accordance therewith shall be forthwith issued to them: *Provided*, That this provision shall in no case carry with it command over any vessel of the Navy Department, but such command shall be exercised only by line officers.

"Sec. 3. That hereafter from the midshipmen who successfully complete the six years' course at the Naval Academy appointments shall be made as may be necessary, and in the order of merit at graduation, to fill vacancies in the lowest commissioned grades of the line and other corps of the Navy to which such graduates are eligible for appointment under existing law, and that the number of said appointments which shall be made to the various corps of the naval service in any one year shall not exceed seventy-five; *Provided*, That the foregoing provision limiting the increase in any fiscal year shall not apply to midshipmen who may have entered the Naval Academy prior to January first, nineteen hundred and four, and have completed their four years' course at the Academy. That the order of merit of graduates of the Naval Academy upon final graduation and the eligibility to appointment in the Navy shall be determined as now provided by existing law and regulation, and the assignment of graduates to the various corps shall be made by the Secretary of the Navy; *Provided further*, That if

there be a surplus of graduates above that necessary to fill the vacancies in the manner and to the extent hereinbefore authorized, those who do not receive such appointment shall be given a certificate of graduation, an honorable discharge, and one year's sea pay; and hereafter any midshipman whose position in his class entitles him to be retained in the service may, upon his own application, be honorably discharged at the end of the four years' course at the Naval Academy with a proper certificate of graduation. The appointments herein authorized shall be made upon July first of each year, which shall be regarded as the beginning of the year for reckoning vacancies for the purposes of this Act.

"Sec. 4. That when an officer has been thirty years in the service he may, upon his own application, in the discretion of the President, be retired from active service and placed upon the retired list. When an officer has served forty consecutive years as a commissioned officer he shall, if he makes application therefor to the President, be retired from active service and placed upon the retired list. And any officer of the Navy who is now serving or who shall hereafter serve as chief of a bureau of the Navy Department and shall subsequently be retired, shall be retired with the rank, pay, and allowances authorized by law for the retirement of such bureau chief.

"Sec. 5. That the pay of all commissioned officers, warrant officers, midshipmen, and pay clerks in the Navy and Marine Corps is hereby increased 20 per centum. And the pay of all noncommissioned officers, mates and other petty officers, musicians and other enlisted persons in the Navy and Marine Corps is hereby increased 40 per centum: *Provided*, That the word "pay" as used in this section shall be exclusive of all additions in the form of allowances and commutations.

"Sec. 6. That all Acts and parts of Acts so far as they conflict with the provisions of this Act are hereby repealed."

WOULD ABOLISH THE GENERAL BOARD

Senator Hale's bill provides for no change in the "Bureau System," but, strikes in its opening section at the various permanent boards of the Navy. According to his bill only "temporary" boards could be convened in connection with "pending" business. No other permanent board of any kind would be allowed by the Hale Bill. It would do away with the General Board of the Navy of which Admiral Dewey is President, and, all other permanent boards, unless they are expressly provided for by law "after the passage of this Act." Explaining this Mr. Hale declared it was only "of late years that permanent boards have been organized." He did not criticize the personnel of these boards. He regarded many of the officers composing them highly but thought "on close observation of the Navy," that the general operation "of these boards has been to create dissension and to make trouble for the bureaus and other offices of the Navy,

where the real work of the Department must be done." Therefore he had proposed the abolition of boards "not as any reflection upon any officer who is a member of any of the boards" but because he believed it "a wise thing to do in order that the jealousies and the very sharp, and at times I think unjust, insinuations and aspersions upon the Bureau officers should at least have no rallying point in the Department."

"A BATTLE GROUND FOR FORTY YEARS"

The section of Senator Hale's bill which seeks to confer positive rank and title upon staff officers will meet with considerable opposition. He spoke of this section as dealing with "what has been a battle ground in the Navy for forty years or more—the differences arising between the line and the staff, between the active officers of the navy, in command of the navy in all its various and diverse component parts, and the staff officers who have raised questions or upon whom questions have been raised with reference to rank, title and recognition." Senator Hale told the Senate he had "looked over precedents afforded by the army" and found there "the staff corps with duties nearly parallel to the duties of staff officers of the navy." He said he had found that actual rank had been given in the army, "conceded for years, and gives rise to no conflict, no trouble, but on the other hand has freed the War Department from many troubles, embarrassments, and controversies that perplex and disturb the navy." So he provided in his bill that staff officers of the navy shall, like army officers, receive recognition, with actual rank and title, and "that these shall be accorded everywhere."

TO INCREASE THE SHORTAGE OF OFFICERS

Very strong objection has been raised against the third section of the Hale Bill, which seeks to limit the number of graduate midshipmen to be commissioned in the navy to seventy-five annually. The strongest of these objections is found in the fact that the navy is already so short of officers that it has been compelled to place many ships out of commission, in order to obtain officers for duty on newer vessels. Great difficulty is being experienced in the effort now being made to obtain the proper complement of officers for four new vessels just about to be commissioned.

So vigorous has been the opposition to this feature of the bill that Senator Hale decided, on January 21, to offer two resolutions, both of which were passed by the Senate, calling upon Secretary of the Navy Metcalf for information as to the number of line and staff officers on duty in

Washington on July 1, 1905, and on January 1, 1908, including a complete list of such officers, their duty, whether any of them serve on Boards, and the reason for such assignment. It is understood Mr. Hale contends that probably ten per cent of the total number of line and staff officers are now on duty in Washington. In his speech of January 9, Senator Hale asserted that, as a result of doubling and quadrupling the number of midshipmen appointments to Annapolis, there were now "852 midshipmen at the Academy, 312 at sea, or 1,164, more than 200 in excess of the number of all of the line officers of the entire Navy." Mr. Hale continued, "One thing is sure to result from this. When these immense classes complete their graduation and at the end of six years are poured into the lower ranks of the navy, there is at once a glut, or what we used to call a 'hump.' The lower ranks are unduly swollen. There is no opportunity, except slight, for emergence or issue, and unless something is done to arrest this condition, a bright youth, after his six years' course, receiving the appointment of ensign, will be twenty-five or thirty years older before he will attain the rank of lieutenant-commander. The number of ensigns and lieutenants today, without this vast number of appointments to pour in during the next five years, amounts to 523, and all the other line officers of the Navy number 442. In the presence of so great an evil I have provided that up to a certain point, to be decided by examination, the brightest, ablest, and most prominent of the midshipmen should be promoted to the grade of ensign and that all the others should receive a certificate that they had complied with the rules of the Department, that they had graduated with honor, should be given a year's pay, and left to enter civil life." Senator Hale declared his belief that this project would not cripple the navy, because the "entire fleet had been despatched to the Pacific or is there now"; that these "great aggregations of naval force will, combined, practically represent the entire naval force"; and that "it is completely officered."

WILL THE COMMITTEE INVESTIGATE?

When Senator Hale had completed his explanation of his bill, he was again pressed by Senator Tillman to answer whether, in the consideration of the Bill by Committee, the members of the Committee would go "into the question of the construction and unfitness of our battleships which has been raised." Senator Hale responded that the Committee would have to settle how far it would go. He thought great amplitude should be given the discussion of the bill in committee. "I do not think," declared Mr. Hale, "we shall get through this session,

discussing the navy and all the other questions coming up, without having a pretty general and wide airing of all these subjects." Mr. Hale said the Naval Committee "can settle then and there whether we will, in connection with this bill or by an investigation upon a Senatorial resolution of the special facts in such cases, go into that

very important question of the wholesale criticisms which have been made of the Department and the scandals almost that are connected with it." The Hale Bill pends before the Naval Committee, which Committee has not yet begun its regular sittings, because its members have been largely engaged upon other committee work.

THE NAVY LEAGUE

At the request of the Secretary of the Navy League, we print the following:

At a meeting of the Executive Committee of the Navy League of the United States held in New York on December 20, 1907, the following resolution was adopted:

Resolved: That the Board of Directors of the Navy League moved by a profound sense of bereavement at the death on December 14, 1907, of their fellow member, Dr. W. W. Hollingsworth, President of the Nicholas Biddle Section of Philadelphia, and a Director of the Navy League, desire to place before the League some permanent record of his worth and character.

He was a firm believer in the principles upon which the League is founded. His advice and the earnest at-

tention which he gave to the work and welfare of the League were particularly appreciated by the management of the organization, while his estimable character, his ability and his geniality earned for him the respect, admiration, and affection of all who came in contact with him.

At no time has he more conspicuously displayed his courage, bravery and devotion than when at a League meeting just before his death, he raised his voice in earnest advocacy of his well known views regarding the scope and purposes of the League.

HENRY H. WARD,
Secretary.

HORACE PORTER,
President.

THE BLUEJACKETS' FRIENDS

At the request of the President of the Bluejackets' Friends Society, we insert the following:

The Bluejackets' Friends Society has been incorporated under the laws of the Commonwealth of Massachusetts after a year of successful work. Its objects are threefold:

First, It aims to secure respect everywhere and always for the uniform of the enlisted men of the United States Navy, because whatever the MAN who wears it may be, the uniform represents the honor of the Nation and the patriotism of its people and, as such, should always be treated with respect.

Secondly, As many of the enlisted men are boys from seventeen to twenty-one years of age who have voluntarily left good homes and all the social advantages which those homes afforded, to serve their country, it becomes the duty of patriotic persons everywhere to welcome those enlisted men into our own homes and in every way possible compensate them for the sacrifices they have made. The members of the Society believe that many desertions

are caused by the treatment accorded the enlisted man when on shore and that these will become fewer as the work of the society becomes better known and its scope becomes wider.

Third, It aims to create in the hearts of citizens such a feeling of patriotism that no keeper of any place of public resort will dare refuse admission to any one clothed in the uniform prescribed by the U. S. Government.

Any person having a good moral character and desiring to help better shore conditions for the enlisted men of the Navy can become a member, excepting those who are in any way connected with the Navy. It is the desire of the officers of the Society that it be kept strictly civilian, as they most earnestly believe that in no other way can the results sought after be obtained.

The originator and President of the Society is Mrs. Abbie Fosdick Ransom, of Milton, Mass., the first vice-president is the Rev. F. H. Gile, of 6 Beacon street, and the secretary is Mrs. Maud Walker, of 360 Broadway, Chelsea. Any information regarding the Society will be cheerfully furnished upon application.

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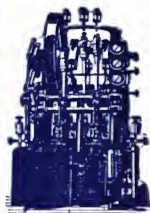
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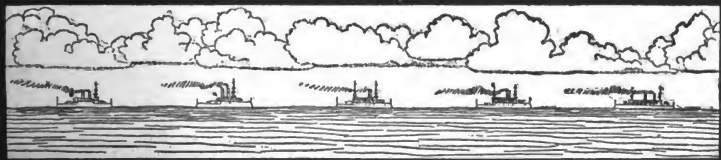
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THE NAVY

Vol. II

WASHINGTON, D.C., FEBRUARY, 1908

No. 2

NOTE AND COMMENT

CREDIT for the compliment he has paid the officers and men of the fleet will no doubt be duly rendered to Chief Constructor Washington Lee Capps. In his Report, published in the Congressional Record of February 19, Constructor Capps gives out, at last, the real reason for the proposed improvements in turrets and ammunition hoists. He says:

"One of the seriously controlling features (so far as the Bureaus of Ordnance and Construction and Repair are concerned) in taking the preliminary steps to make this change in turret ammunition hoists was the recognition of the apparent distrust in which the present type of hoist was beginning to be held on account of the serious misrepresentations which had been made as to the safety of that type of hoist. Inasmuch, therefore, as the efficiency of any body of men is seriously impaired, if they honestly believe that the tools with which they are to work are at all unsafe, the Bureaus of Ordnance and Construction and Repair have been working together for some years past to make such modifications of ammunition hoists and turret arrangements as would meet all practicable requirements of both speed and safety."

The consideration shown by these two Bureaus for the timid and ill-informed officers and men who shoot our big guns is truly touching! They perceived, years ago, it would seem, that our gun crews were afraid of their guns! And now they inform the Secretary that the only real reason for a change is because of this same ignorant

fear. The men of the fleet are ignorant and misled, but we must do something to cheer 'em up!

THE Atlantic Fleet, which left Punta Arenas on the evening of February 7, made a fortunate passage of the Strait of Magellan, passing the Four Evangelists, the rocks which mark the western entrance of the Strait, on the north, the next evening. The ships of the fleet maintained a distance of four hundred yards from each other, the whole American column being led by the Chilean cruiser Chacabuco, which preceded it from Punta Arenas. Passing within sight of the city of Valparaiso, on February 14, the fleet was honored by a great popular demonstration, and courtesies were exchanged with Chilean officials, who met Admiral Evans' fleet on war-ships of Chile. The fleet reached Callao, Peru, on February 20. That day had been made a national holiday, and the festivities which followed were as cordial and extensive as those extended to the fleet, its officers and men, at Rio Janeiro.

The torpedo flotilla left Punta Arenas with the battleship fleet; three vessels of the flotilla steaming on either flank of the first division. The flotilla reached the entrance to Smyth Channel at five o'clock on the afternoon of February 8, when it left the main fleet, and, piloted by Lieutenant Rozas of the Chilean navy, proceeded north along the inside passage.

REFORM of the present wasteful system in our navy yards now seems on the verge of something like substantial realization. For some months past, in the Brooklyn Navy Yard, there have been serious attempts to find out how far the administration of the construction plants could be consolidated and what savings of time, labor cost, and paper work could be accomplished by doing away with much of the unnecessary red tape now involved in the simplest piece of business. Rear Admiral Goodrich, the commandant of the yard, has worked out a number of measures, in applying which he has had the cordial support of Secretary Metcalf and Assistant Secretary Newberry. Mr. Newberry in a recent hearing before the House Naval Committee, said that he hoped by next year to have a definite plan worked out for the simplification of work and administration in all the navy yards.

The waste involved in the present system was rather strikingly brought out in the hearings held by members of the House Naval Committee last summer. In those hearings, which were conducted at navy yards on the Atlantic coast, it was shown that there was a great and unnecessary duplication of shops doing the same kind of work in each yard; as, for instance, three foundries, four pattern shops, four machine shops, and so on. It is the firm belief of every one who has studied navy yard administration that a saving amounting to millions of dollars a year can be affected by putting the work of our navy yards on a basis approaching that of private industrial plants.

THE Scientific American honors THE NAVY by calling it names, because THE NAVY has ventured, in discussing the Scientific American's defence of present conditions in the fleet, not to swallow, undigested, the official figures of our naval constructors. The shifts to which the literal partisans of these figures are driven in a discussion of fleet conditions must appeal to a sympathetic mind. The Scientific American exposes its own difficulty when it takes up THE NAVY's accurate statement that on December 16 the armor belt of the *Connecticut* was submerged to the extent of a foot. "If this be true," says the Scientific American, "it can be shown by THE NAVY's own figures that the *Connecticut* must have displaced over 20,000 ton." The Scientific American thinks this an absurd condition for a 16,000-ton ship; and in that THE NAVY quite agrees with it. There is no reason in the

nature of things, as the Scientific American admits, why the *Connecticut* should not, by heavy loading, be made to displace even more than 20,000 tons. The point to be noted in the Scientific American's comment is that it does not deny the statement that the *Connecticut's* belt was submerged. This was the fact.

When it comes to "naïvete" in naval matters, we fancy the Scientific American should be cited as an exhibit, for on the front page of its issue of January 25, it printed a picture of the *Kentucky* "weighing anchor to go to sea," with her after cabin ports open, her broadside and turret ports open, and none of her steam launches aboard. American battleships do not weigh anchor to go to sea in that condition. The blunder of making such a statement in connection with such a picture has aroused some hilarity within the Navy Department, where there are, after all; a number of officers who have been to sea. Those members of the Department who welcome any defence of the "normal draught" must have been not a little annoyed that a partisan of their side of the case should not have known that the ship as pictured was not "weighing anchor to go to sea," but was preparing to go into drydock.

PRESIDENT ROOSEVELT sent a special message to Congress on February 13, cordially endorsing Secretary Metcalf's recommendations for legislation whereby the representatives of the Government may have such control of wireless telegraphy as will insure non-interference with official messages. The Navy Department has control of the Government coast station, but messages sent by those stations, or by public vessels, may be interfered with by wireless stations operated either by commercial companies with a legitimate object, or by irresponsible persons with malicious intent.

The message of the President contained a letter from Secretary Metcalf which said, in part:

"Frequent occasions have arisen to illustrate the possible consequences of wireless interference; on one occasion an important message to the President of the United States while embarked on a naval vessel was interfered with and held up for a considerable time by the workings of a commercial wireless station; and instances have occurred wherein the naval stations at Newport, Washington and San Francisco have at different times been interfered with by persons operating with no serious object.

"The recent International Wireless Telegraph Convention at Berlin, to which the United States was a party, deals only with 'wireless telegraph stations open to public

service between the coast and vessels at sea,' and therefore does not take cognizance of stations operated by private individuals for other than public service.

"However, Article 8 of the Convention requires that: 'The working of the wireless telegraph stations shall be organized as far as possible in such manner as not to disturb the service of other wireless telegraph stations.'"

The Navy Department therefore recommends, with the President's approval, that such legislation be enacted as will ensure freedom of official messages from interference. To accomplish this the President and Secretary Metcalf urge that the law should make it a punishable offense:

(a) To originate or transmit a false message purporting to be official.

(b) To break in and interfere with any wireless station while it is transmitting an official message.

(c) To refuse to cease or fail to cease sending a private wireless message when called upon to do so by an operator having an official message to be sent.

Secretary Metcalf informs Congress that a law embodying these essentials would never seriously interfere with the legitimate working of commercial wireless installations. "The restrictions suggested," says Mr. Metcalf, "are intended to apply particularly in times of peace. During war, it is contemplated, that much more extensive prohibitions would be exercised, to be put into effect, in the absence of legislation, by executive proclamation, as a belligerent right."

IDENTICAL bills have been introduced — by Senator Gallinger and Representative Burton of Delaware — in the two branches of Congress, for the establishment of a corps of trained women nurses for the navy. They would authorize the Surgeon-General to appoint a superintendent of nurses, and as many chief nurses, nurses, and reserve nurses as may be needed, the superintendent and nurses to be graduates of hospital training schools for nurses having a course of instruction of not less than two years' length, the appointments to be for three year periods, and revocable at any time in the interest of the service. Those appointed under the proposed enactment would be eligible for duty at naval stations and on board hospital and ambulance ships, and reserve nurses would be paid only when on active duty.

Women Nurses for the Navy

Representative Butler of Pennsylvania introduced a bill, on February 6, to authorize the President to appoint 30 dental surgeons to service officers and enlisted men of the navy and marine corps. They would have the rank

and pay of acting assistant surgeons in the navy, and should be graduates, between ages of 24 and 35, of standard dental colleges. The dentist now employed at the naval academy would not be displaced by the operation of the act.

Senator Gallinger, on February 6, introduced his bill for the reorganization of the naval hospital corps. Under the proposed law the hospital corps would consist of chief pharmacists, pharmacists, and such ratings in the enlisted branch as may be designated according to law, governing other enlisted men. Like other warrant officers who are commissioned, the pharmacists would be commissioned chief pharmacists, and upon promotion would have the rank, pay and allowances of chief boatswains. Pharmacists would be appointed by the President, and vacancies would be filled in that grade by selection from the enlisted force of the naval hospital corps, subject to examination.

SENATOR KNOX of Pennsylvania introduced a bill on February 6 to fix the number, status, and compensation of chaplains in the navy. It contains a preamble reciting that the corps of naval chaplains has not been increased in number since 1841, although the navy has increased more than five-fold; that there are now nearly 50,000 sailors and marines and 330 naval vessels, 65 of which are battleships and cruisers, some carrying a thousand souls; that only eight of the twenty-four chaplains allowed by law now can be spared, from the sixty or more navy yards, hospitals, prisons, schools, receiving ships, and training stations, for duty on seagoing ships, and that "it is not the purpose of this government to deprive American men-of-war's men of the benefits of divine service in life and the comfort of prayer and religious ministrations in death."

Accordingly, the Knox bill proposes one chaplain for "every five hundred souls authorized by law for the Navy and Marine Corps," but the number appointed to fill vacancies created by the proposed law is not, within the first year after its passage, to exceed the number to bring the total number of chaplains to fifty; and after that ten are to be appointed annually until the total authorized number is reached. Ten per cent of the total number proposed would have the rank of captain, twenty per cent the rank of commander, and seventy per cent the rank of lieutenant-commander; and their rank, uniform, pay, and allowances would be identical with those of other seagoing officers of the same rank.

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No. 2

WHO OWNS THE FLEET?

Ostensibly the American people own the American fleet. The people pay for the fleet to the extent of more than a hundred millions of dollars a year. What does this ownership amount to?

No real knowledge of the condition of this vast property for which they are spending money so lavishly ever comes to the people. Concerning other departments of the Federal Government, the public has something like actual knowledge; but the Navy Department and the Fleet are an exception. The Navy Department, spending more than a hundred millions a year, renders to the people only such account as suits its own convenience and self-interest. The Navy Department is inefficiently organized as a concern for the production of warships. The ships it has produced are by no means so good as the Department declares them to be. Millions have been wasted and misspent because the Department has been more eager to pile up its own powers and authority than to make the best fleet in the world by calling upon private inventors and engineers from among the most efficient mechanical people in the world,—the American people. The Department is thus a kingdom in itself, drawing huge revenues from the public treasury, but making no real account of its stewardship. The people, who own the fleet, cannot find out what the fleet is like, or how efficient it is,—where it is weak, or strong, or why.

This bad situation is due to Article 252 of the Navy Regulations, which reads as follows:

252. All persons belonging to the Navy, or employed under the Navy Department, are forbidden to publish, or to cause or permit to be published, directly or indirectly, or to communicate by interviews, private letters or otherwise, except as required by their official duties, any information in regard to the foreign policy of the United States, or concerning the acts or measures of any department of the Government, or of any officer acting thereunder, or any comments or criticism thereon, or any official instructions, reports, or letters upon any subject whatever, or to furnish copies of the same to any person without the permission of the Navy Department. No person belonging to the Navy, or employed under the Navy Department shall act as the correspondent of a newspaper, discuss in the public prints matters pertaining to the personnel of the naval service, or attempt to influence legislation in respect to the Navy, without the express authority and approval of the Department. Any violation of the provisions of this article will be noted in the record of the person concerned.

The protection afforded by this regulation to official mistakes, unbusinesslike and wasteful use of the public money, and serious weaknesses in our war fleet, is nearly perfect. A little scrutiny of its provisions will show that it is as iron-bound as the rules of the Bureaucracy of Russia. It is a violation of this regulation for an officer of a ship to make any comment on the condition of the ship, to any one outside of the Navy Department. It is a violation of the rule for a gunnery officer to say to any one that the guns of his turret are ill-mounted or that the ammunition hoist is faulty. It is a violation of the rule for an officer to express any opinion upon the character of the Bureau System of naval administration. In short, the regulation enjoins on all officers of the navy and on every other person employed under the Department, a silence that would seem to be humanly impossible.

The rule, it may be said in defence, was issued many years ago, under war conditions which justified the extreme rigor of its provisions.

No justification exists now. On the contrary, the rule serves now only to furnish the Department with a most effective screen for its own blunders and defects. It is being used now to cover up mistakes in judgment, waste of money, and grave defects in our warships. No officer may inform the people of the country of the facts, without

laying himself open to court martial. If he is not tried by court martial, the Bureaus know of other ways to punish him. He tells the truth at his peril. On the other hand, when the Department wants to defend its mistakes, it may authorize an officer to prepare and make public any sort of white-washing statement that may be deemed to suit the exigencies of the occasion. The result is that the whole service is under a constant pressure to justify and excuse the existing order of things. Defend the Bureaus, and you get preferment and the good-will of the powers that be. Tell any truth that does not please these powers, and you may expect something unpleasant. Thus the regulation brings to bear on the whole service the cohesive power of self-interest. The rule does not keep our military secrets from foreign nations. It keeps the truth from those who have a right to know the truth,—the people of the United States.

The extent to which this power of the Department to smother the truth goes is little suspected by the public. THE NAVY, for instance, is not the only magazine or paper that has investigated naval conditions during the last year and learned the deplorable truth of our situation. But most of these, after discovering the facts, have remained silent. This is a presidential year, and it would be awkward if the public were to discover that the Navy Department is ill-organized, inefficient and wasteful. This is the fact, but how is the fact going to reach the public, when the self-interest of thousands of men—and dollars—is enlisted in holding back the facts?

Upon the Naval Committees of the Senate and House rests the grave duty of demolishing this medieval Article 252, and of digging out and laying before the public the facts of our naval situation. The Committees do not need the guidance of distinguished experts who are themselves largely responsible for the defects from which the fleet suffers. The Committees should call for:

1. The log-books of the ships of the Atlantic fleet. From these log-books they will find just how much water each ship drew when she entered or left a port. The books will show that the so-called "normal draught" of which Admiral Converse and Constructor Capps have made such use is a pure fiction; they will show that no

ship in the fleet has the height of freeboard, or the height of gun positions, or the breadth of armor belt above water that is given in the reports of these officers. This does not mean that these officers misrepresented the facts. They merely used official figures which do not represent the actual condition of our ships.

2. The Committees should call for all reports from officers of the fleet in criticism of the position of the armor belt, and of the unsafeness of our turrets; and along with these reports they should have the official record of just what was done in regard to these criticisms. They should also call on the Department for its official records showing just when the Board on Construction decided to adopt the "improved" turrets for ships now building; just when the design was approved; and when it was sent to the builders of the *Delaware* and the *North Dakota*. These records would show the truth—or ought to show the truth—which has not yet reached the public.

The people of the country are entitled to the truth and the whole truth. The Naval Committees can get the truth if they want to. No question before Congress is more important than this of the efficiency of our naval system, and the Committees should not hesitate to give the time and the labor that a thorough investigation requires.

THE CONVERSE AND CAPPS REPORTS

The "Statement Regarding Criticisms of Navy," signed by Rear Admiral George A. Converse, was made public by the Secretary of the Navy on February 17. The "Statement" was prepared by the President's order, and it was evidently intended to dispose of all objections to the present order of things naval. The task was a difficult undertaking for any officer, especially for one who, like Admiral Converse, is on record as condemning the present organization of the Department. The "Statement" was the product of many weeks' work by practically the whole Washington force of the Bureau of Construction and Repair, assisted by other officers. It bears the unmistakable evidence of many pens. It is messy,—it is inconsistent,—it is, to speak quite frankly,—wholly

misleading. Primarily, it is directed against the Reuter-dahl article, which was made possible only by the campaign of education which THE NAVY has carried on for nearly a year past. The object of THE NAVY was to show by the evidence of our ships that reorganization and reform of the present administrative system of the Navy Department is imperative.

NO DEFENSE OF BUREAU SYSTEM

No defense of the present Bureau System is attempted by Admiral Converse. Such defense was, indeed, practically impossible in view of Admiral Converse's Report as Chief of the Bureau of Navigation, no longer ago than December, 1906. In that Report Admiral Converse said, (*the italics are ours*) :

"The Bureau (of Navigation) will make no recommendation on Navy Department organization, as it, together with the legislation necessary for the improvement of the commissioned personnel, is before a Board appointed by the Department. It may with propriety be said, however, that with each year that passes the need is painfully apparent for a military administrative authority under the Secretary, whose purpose would be to initiate and direct the steps necessary to carry out the Department's policy, and to co-ordinate the work of the bureaus and direct their energies toward the effective preparation of the fleet for war. . . . No adequate machinery exists for these purposes, and under the present practice the Bureau of Navigation arranges for carrying out those details of the Department's plans. . . . *The conduct of a serious war will require, unless we are to suffer defeat in its early stage, an efficient administration of the military features of the Navy Department. The Bureau believes that all will agree that we should not wait for the disasters of actual war to provide it, but rather should make adequate provision beforehand.* . . . The Bureau wishes, in this connection, to invite attention to certain reports of your predecessors to those making a study of Navy Department organization. Since the able report of 1885 (a very drastic criticism of the existing system by the late Wm. C. Whitney) the different Secretaries have devoted considerable space to a discussion of the inadequacy of the present system, and to possible remedies."

"BATTLE DRILLS"

In attempting to refute the correct assertion that our fleet has had hardly ten days of practice in "battle tactics" since the Spanish war, the "Statement" makes use of an evasion which is the only device left open to an utterly worthless case. Admiral Converse speaks of "bat-

tle drills," and gives an imposing list of "drills" and "exercises," beginning as far back as the Summer of 1901. These "drills" are not what naval men understand by "practice in battle tactics": they are not the sort of training carried out in the maneuvers of the British navy, or the German navy, or the Japanese navy. There is the same difference between "drills" and "battle tactics" that there is between going through the manual of arms in the armory, and putting men through a sham battle in the field.

Admiral Converse made the very criticism he now tries to refute, in his annual report as Chief of the Bureau of Navigation, in December, 1906. In that report he said (*the italics are ours*) :

"The Navy has made great strides toward straight shooting, and in the schooling of officers and men in the drills of the ship and the squadron, *but the captains and flag-officers have not yet had that practice and opportunity to acquire skill in handling a large number of vessels.*"

In the "Statement" (page 4), Admiral Converse says:

"In the Spring of 1907, by the completion of new vessels, this number (eight ships) was increased to sixteen battleships, thus completing two squadrons, which when united formed a fleet. *It then, for the first time, became possible to hold and carry out fleet tactics, which was begun in July and August last.*" (*Italics ours.*)

Let us pause to note the remarkable facts here disclosed. 1. There were no "fleet tactics" until last year: this agrees perfectly with what THE NAVY has stated as a weakness of the fleet. 2. The navy of the United States was too small, up to the Spring of 1907, to practise battle tactics. This second conclusion, which Admiral Converse puts forth at some length, will come as a surprise to those people who supposed we had had a war fleet for some years past.

THE "NORMAL DRAUGHT" FALLACY

The normal draught fallacy takes all serious value from Admiral Converse's discussion of the height of freeboard and height of gun positions and exposure of the water-line armor belt on American ships. His figures, under each of these three topics, show the relation of freeboard, gun positions, and armor belt to the normal draught. Every naval officer knows that our warships,

under ordinary conditions of service, draw nearly two feet more than their "normal draught" allows for. This knowledge explains Admiral Converse's quotation (page 28 of his Report) from the Walker Board, which runs:—

"A battleship's 'normal' draft should be her 'fighting draft,'—otherwise the term is inaccurate and misleading,—not her maximum draft with all the ammunition, coal, and stores that she can carry, but her draft with a large percentage of these supplies—not less than two-thirds of her full capacity of each on board. And the position of the armor belt line should bear its proper relation to this actual load line, not to a fictitious load line seldom realized under service conditions."

It is precisely this "fictitious load line seldom realized under service conditions" that makes the official figures of the Navy Department so entirely misleading. Admiral Converse's tables, if they were to represent the actual condition of our ships at sea, would have to have the figures for American ships decreased by at least a foot and a half. That subtraction would do away with the creditable, but fictitious, comparison he has presented. How far these figures for American ships are from representing actual positions may be guessed at by a comparison of the *Connecticut* and the *King Edward VII*. The *King Edward*, while displacing 16,350 tons, draws, according to the British official "normal draught," 26 feet 9 inches. The *Connecticut*, one foot narrower and two feet longer than the *King Edward*, has an official normal draught, when displacing 16,000 tons, of only 23 feet 6 inches. In other words, our constructors, according to their official figures, can float a 16,000-ton ship in 3 feet 3 inches less water than is required by a British ship of practically the same size and displacement. This example is a sufficient illustration of the well-known fact that our normal draught is pure fiction.

On the position of the water-line armor belt Admiral Converse's discussion is damaged by his failure here, as in relation to freeboard and gun positions, to quote from the log-book of any ship. He refers to the log-books, but he does not cite the figures, which, if they are such as his statement intimates, would completely prove his case. The absence of these figures is profoundly significant: it leaves the whole matter to assertion rather than demonstration.

THE TURRET QUESTION

In its discussion of the safety of American turrets as compared with most foreign navies, Admiral Converse's statement would lead those who do not know the facts to suppose that the only differences between American and foreign turrets were matters of "mechanical detail." Separation of the turret from the handling room has been urged by THE NAVY as essential to the safety of our warships; and we have urged the adoption of the two-stage hoist as a means of giving the safety our ships now lack. Admiral Converse discusses various arrangements for ammunition hoists and seems satisfied with his case when he has reached "A total in the British Navy of 162 turrets fitted with direct, as against 56 fitted with the two-stage hoist." The real question is not one of two-stage as against direct hoists, but of a hoist so arranged that powder ignited in the turret by a flareback is practically certain to drop into the handling-room below. The American system is faulty because its hoists run up to the breech of the guns, and even with our automatic shutters—as in the case of the Georgia accident—allows fire to fall from the turret into the handling-room. The direct hoist in the British Navy is enclosed in a metal tube provided with several doors; and it enters the turret at the centre, several feet forward of the breech of the gun. An ignited powder charge can by no possibility fall into the handling room. In other words, the British direct hoist is safe, while the American direct hoist is unsafe. This difference seems to us more than the mere difference of "mechanical detail" which is apparently all that Admiral Converse finds in it.

THE CAPPS REPORT

We refer to the report addressed by Chief Constructor Capps to the Secretary of the Navy, and published in the Congressional Record of February 19, mainly because few will ever learn of it at the cost of such labor as is required to wade through its arguments. It is full of the high scorn proper to a technical expert who has no patience with a simple demand for plain facts. Its most interesting statement, or such it seems to us, we have given a place of due honor as the first item under "Note and Comment," in this issue of THE NAVY.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

THE WORLD'S SWIFTEST DESTROYERS

LONDON, February 1, 1908.

The British naval output for 1907 included the launching of six torpedo-boat destroyers, larger and faster than any others in the world. Five are of the so-called Tribal type, named after notable tribes of fighting men, and the other is the *Swift*, which is expected to be the fastest in the world.

The five Tribal class destroyers were each designed for 750 tons and 33 knots speed. They are all completing, four have already had their trials, accomplishing marvelous results, and all five will soon be commissioned. Wonderful as has been the work in recent trials of these Tribal boats,—one of which is now the fastest war craft in the world, with a maximum speed of over 37 knots along a measured-mile course,—we in England believe a greater triumph of marine engineering will come with the completion of the *Swift*, which is building at Birkenhead from designs calling for 1,800 tons displacement and 36 knots speed. If she does as well proportionately as the Tribal class destroyer *Tartar* on her trials she should exceed 40 knots an hour—equivalent to 46 land miles an hour.

The *Swift* is being built by the Admiralty by way of experiment, and is expected to prove invaluable to the fighting fleet. She is really a scout-destroyer and can be used in either torpedo attack or as a scout. Like all other recent Tribal destroyers, she will burn oil, and oil only, provision being made in the designs for a carrying capacity of no less than 180 tons of oil fuel. The new Tribal destroyers likewise burn nothing but oil, and are propelled by turbines. Oil and turbines are responsible for the superior speed attained by them upon their trials, and the results have fully justified the decision of the Admiralty that led to the introduction of these innovations in the Royal Navy. Our attitude toward the turbine has had telling effect upon the newer German designs, and the installation of turbines for one of the new American Dreadnoughts and in two of their new scouts indicates that your government is interested. But a constant source of wonder in the British Navy is the fact that a great oil-producing country like the United States,—the largest, in fact, in the world,—is so far behind in the adoption of oil fuel. Perhaps the results obtained at the trials of the Tribal class will have some weight with your

Navy Department in the consideration of this kind of fuel.

The five new ocean-going destroyers of the appropriately named Tribal class are the *Afridi*, which is completing at the Armstrong yards; the *Cossack*, at Cammell's; the *Ghurka*, at Armstrong's; the *Mohawk*, at the White shipyards at East Cowes; and the *Tartar*, at Thornycroft's. All but the *Afridi* have had their trials, and three of them have averaged approximately 34 knots for six hours under full power; while one of them—the *Tartar*—exceeded an average of 35 knots for six hours under full power, in addition to attaining a maximum average over 37 knots for one mile over the measured course. Because in her completion the Thornycroft firm have won for the *Tartar* the "blue ribbon of the sea," that firm is to build a new vessel of the same type for the Admiralty.

After her completion at the works of Messrs. John I. Thornycroft and Co., Ltd., of Southampton, the *Tartar*, on contractor's trials at Stokes Bay, Admiralty course, over six mile runs, obtained a mean speed of 33.122 knots, without being in any way pressed. The preliminary official trials were carried out at the Maplin Sands in December. After steaming from Southampton quite easily at an average speed of 34 knots, the destroyer actually obtained a speed of 34.857 knots an hour as a mean of six runs over the Admiralty measured mile course, with a greater load than stipulated by contract. During the two hours' run made on that occasion, the *Tartar* maintained 34.7 knots. The greatest speed registered by the vessel up to the holding of the preliminary official trials was attained on December 3, when, after running from Southampton to the Maplins at an average of 34 knots, she reached 35.952 knots an hour as a mean of runs with and against the tide on the Admiralty course.

Satisfactory as were the results of the preliminary contractor's and official runs, they were completely eclipsed by the speeds obtained when the *Tartar* had her final acceptance trials in the presence of Admiralty officials on Monday, December 16, at the mouth of the Thames. The vessel maintained a speed of 35.363 knots throughout a continuous run of six hours' duration, and covered a distance of nearly 233 nautical miles in this period. The mean speed on six runs over the measured Admiralty knot during the six hours run proved to be 35.672 knots, and the best speed obtained on any one run was 37.037 knots with the tide, thus creating still another record, which is now the naval record throughout the world.

The results obtained throughout the trial were as follows:

Number	Speed on Six Runs	Mean Speed During each Hour	Mean Revolutions per minute on Six Hours
1	36.810	35.137	763.9
2	34.549	35.245	766.2
3	36.961	35.401	767.9
4	34.286	35.301	767.44
5	37.037	35.429	770.2
6	34.286	35.665	775.4
Mean	35.672	35.393	768.8

The *Tartar* is 270 feet long on the water line, 26 feet beam, and 17 feet 2 inches depth. Her shape follows generally the lines of the earlier destroyers built by the same firm. A prominent feature is the turtle deck, instead of the raised forecastle deck frequently adopted for vessels of the *Tartar's* size. The advantage of the former is that the water is thrown overboard. The destroyer has considerably less freeboard than the four other 33-knot boats.

The Thornycroft firm has won the blue ribbon a number of other times with their destroyers. Before the advent of the *Tartar*, they built the five following torpedo boats and destroyers, each of which created a record in its day:

Name	Government	Date	Speed
<i>Ariete</i>	Spanish	1887	26.003
<i>Daring</i>	British	1893	28.213
<i>Boxer</i>	British	1894	29.170
<i>Desperate</i>	British	1895	30.350
<i>Albatross</i>	British	1898	31.500

The *Tartar* is built of high tensile steel, with the hull constructed so as to obtain the greatest strength for the least material. She is engined with Parsons steam turbines made by the Thornycrofts, arranged on three shafts and capable of developing collectively 14,000 indicated horse-power. The high-pressure turbine on the central shaft exhausts into the low pressure turbines on the wing shafts, and the steam is supplied by six water-tube boilers fired with heavy oil, which is injected into the furnace through burners of a special Admiralty pattern, so as to provide plenty of steady steam at a working pressure of 220 pounds to the square inch. Among the other interesting features of the *Tartar* are mechanical means for ventilating the engine room when bad weather necessitates the closing of the hatches; the use of a system of loud-speaking telephones at all important ship stations in place of the usual voice pipes; and provision for the installation of wireless telegraph apparatus. The photographs taken of the *Tartar* show that when she was aver-

aging more than 34 knots during her official trials there was hardly a trace of smoke. Another advantage of the use of oil was the absence of the usual shower of cinders from funnels, falling upon the upper deck.

Following the six hours' official trial, the *Tartar* was put through a twenty-four hours' fuel consumption trial on December 17 and 18 with success, exceeding the stipulated speed of 13 knots running economically, the actual speed during the period being 13.105 with the boilers burning less oil than prescribed by the Admiralty contract.

No such results as those of the *Tartar* have been obtained by any other destroyers. The closest approximation is the work of the *Mohawk*, built by J. Samuel White and Company at East Cowes, during trials which occurred a month earlier than those of the *Tartar*. The *Mohawk* showed her quality during a preliminary contractor's test at the mouth of the Thames, where she made over 34 knots an hour. The *Mohawk* is also 270 feet long, but of one foot less beam than the *Tartar*, and is very fine forward. She also has Parsons steam turbines supplied with White-Forster boilers, burning oil fuel on the latest Admiralty system. During the trials there was an absence of smoke, accompanied with steadiness of oil consumption and steam supply.

The criticism that reliability was being sacrificed for speed in all five of these new 33-knot destroyers has not been supported by the trials held for four of them. Concerning this point one of our British authorities says, in connection with the *Mohawk* trials:

"The Admiralty policy regarding torpedo-boat destroyers has been criticised, because it was considered that in seeking for 33 knots they might, in some measure, forfeit reliability, and, moreover, reduce the possible radius of action. It is, therefore, especially interesting to record the admirable performances of the *Mohawk*, alike as regards speed, reliability, fuel economy and sea-worthiness. Indeed, this vessel has established a record in speed and fuel consumption. The vessel ran six times over the measured mile at the Maplin Sands in the Thames Estuary and her mean speed was then 34.511 knots, the mean revolutions being 757.3 per minute. On the six hours' run the average speed was on the basis given 34.245 knots. This is the highest speed obtained on such a lengthened trial by any craft, and the credit is greater in view of the fact that the total fuel consumption was fourteen per cent less than that specified by the Admiralty for the six hours' trial at 33 knots. In other words the requirement of the contract was that the oil fuel consumption should not exceed one pound per square foot of heating surface and the actual result was 0.86 pounds per square foot. The total consumption for six hours was

68¼ tons, and as the vessel carries 148 tons of oil, she has a radius of 435 nautical miles at this remarkably high speed. At a cruising speed of 14 knots, however, she will be able to steam 1,500 nautical miles. In respect to sea-going qualities it may be noted that during the six hours' trial the wind was of force 4 and the vessel proved very seaworthy. Another trial of considerable interest is the two hours' steaming test in a sea which is considered by the Controller of the Navy 'moderately rough.' The idea of this test is to make sure that the vessel will be able to develop in a fairly rough sea a speed sufficient to ensure her escaping from a heavy cruiser capable of steaming 23 or 24 knots. All of these facts prove that the Admiralty vessel is well suited for active work in narrow seas."

The official six hours full speed trials of the *Mohawk* were had at the Maplin Sands Admiralty course on November 15 last, and the results obtained were as follows:

Number	Speed on Six Runs	Mean Speed During each Hour	Mean Revolutions per Minute on Six Hours
1	35.394	33.407	733
2	33.834	34.183	750
3	35.019	34.363	754
4	34.091	34.227	751
5	34.884	34.227	751
6	34.851	34.455	756
Mean	34.511	34.245	751.4

The Tribal class destroyer *Ghurka*, which is of the same general type as the *Tartar* and *Mohawk*, made more than a knot over her contract requirements during her official six hours' full speed trials in November. Her work was on a par with that of the *Mohawk*, but not equal to the *Tartar*'s record. The *Ghurka* was built by Messrs. R. and W. Hawthorn, Leslie and Company, who built the earliest turbine boats ordered by the Admiralty—the *Viper*, *Veloxy*, and *Eden*,—and is intended, like her sister boats, for open sea work. During the whole period of her six hours' official trial the *Ghurka* averaged 33.91 knots an hour, approximately a knot more than stipulated by her contract, and this is a wonderfully high speed, when it is considered that the Admiralty requires the high average to be maintained for six hours with a limited consumption of fuel. The mean of the six runs made over the measured mile course during the fourth hour gave a speed of 34 knots, and the highest mean speed obtained on the measured mile course was 34.25 knots. On the twenty-four hours' consumption trial the *Ghurka* demonstrated that she has a radius of action of 1,715 nautical miles at a speed of 13.5 knots, and if she were fitted with tanks it is calculated that she would be able

to steam 2,500 nautical miles without stopping. This would take her across from Ireland to Canada without renewal of oil fuel. Completing her trials the *Ghurka* left Sheerness for the Tyne and covered the distance of 270 miles in ten hours, or quicker than it could have been done from Sheerness to Newcastle by train, and only four of her five boilers were working during the voyage.

The *Cossack* did not come up to the record of the other three destroyers which have had trials. She had her trials, and all having made over their contract speed of 33 speed run of six continuous hours she averaged 33.151. The highest speed obtained by her on an individual run over the measured mile was 33.65, and her consumption of oil for 24 hours was 27 tons, the distance run per ton of oil fuel at economical cruising speed having been 12.5 nautical miles. Her average speed of 33.151 knots an hour was equivalent to a distance of 198.6 nautical miles during the six hours of the trial.

Four of the five Tribal destroyers having now run their trials, and all having made over their contract speed of 33 knots, interest attaches to the work of the *Afridi*, the fifth of these vessels, which should soon have her trials.

PROGRESS OF THE GERMAN NAVY

BERLIN, February 1, 1908.

The crisis in the German Navy League, at one moment so acute as to threaten its very existence, may be regarded as on the road to solution. The firm stand taken by Prince Rupprecht of Bavaria against the League being turned into an organization for party purposes led other patriotic supporters of the movement, including the Kaiser, to make inquiries, with the result that Prince Henry, as his majesty's representative, announced his intention of following Prince Rupprecht's example, unless a change were made in the management. With the prospect of further withdrawals of patronage by the most influential personages in the Empire, whose departure promised to cause defections by thousands among the ordinary members, the managing body could not do otherwise than examine its position closely. The outcome of this self-examination was made known at the general meeting of the League at Cassel, where General Keim, the active manager, whose aggressive propaganda had brought the League so near to destruction, resigned, along with all the other members of the executive. Peace is, however, not yet restored. The Bavarian section now threatens to secede and form an entirely separate organization. It is confidently expected that, even should this

occur, the present internal tribulations over, the League will once more regain its strong place in the affections of the nation, and perhaps become even more popular than ever. The idea of its founders was to appeal to the purely patriotic spirit of citizens without regard to their political convictions; and the new management, when it is elected, will receive a mandate calling on it to adhere to the original principles.

When the new naval budget was introduced, the figures were so misleading that few people obtained a definite idea of the amount of extra expenditure proposed to be devoted to the navy. The addition to the total accepted in 1906 as the estimate for the ten years from 1908 to 1917 inclusive amounts to no less than \$246,750,000, the grand total for the ten years having been brought up to \$1,048,100,000, or an average of over \$100,000,000 yearly. Nearly half of this sum is to be devoted to new construction. The remainder is accounted for by expenses of upkeep, repairs, and pay, and, of course, administrative charges.

A project is under consideration by the Marine Ministry to subsidize two of the great private shipbuilding companies so as to induce them to lay down plant to enable them to turn out battleships more rapidly than hitherto. If the proposition is carried through, the two concerns in question will be in future almost exclusively engaged on the construction of warships. A table recently drawn up by a prominent authority on naval matters proves, if the conclusions are correct, that Germany is but little behind England in the matter of rapidity of construction. The average period for the construction of a battleship by the leading naval powers is given as follows: England, 42.4 months; Germany, 42.5; the United States, 60.0; France, 66.1. For armored cruisers the time is: Germany, 39.1; England, 44.9; France, 60.4; the United States, 62.9. Altogether, Germany thus holds the best record. The writer points out that England has recently forced the rate of construction by working the shipwrights night and day, and that this improved her record, which will not, however, be so good in future. The Marine Ministry here is determined to decrease its average time for the construction of a battleship to thirty-six months. The greatest difficulty which has to be overcome in this connection is the furnishing of armor and heavy guns. Only one firm exists here which can undertake such work, whereas in other countries the naval authorities can turn to several quarters. The question is under consideration, and it may be that next year a pro-

posal will be put forward for the erection of a national armor-plate and artillery works, which would place the government in a far better position.

Preparations for the transfer of a battleship squadron to Wilhelmshaven on the North Sea are occupying the serious attention of the Marine Ministry. One of the difficulties in the way hitherto was the lack of dry dock accommodation, but this is to be overcome by the construction of a big dry dock on the Lower Elbe, at a cost of \$7,500,000, in addition to the two now being built at Wilhelmshaven. It has been argued in some quarters that a damaged vessel could be towed through the Kaiser Wilhelm canal to Kiel, but such an attempt is recognized by practical men as too full of risks, as an already damaged ship could so easily block the whole of the canal traffic, a calamity whose effects would be incalculable during hostilities. In addition to this difficulty, there is the fact that the North Sea squadron will at some future period consist of vessels of 19,000 or 20,000 tons, which could not in any case pass through the canal.

Germany is following the example set by Great Britain in reducing the number of vessels serving on foreign stations, and concentrating practically the whole fleet in home waters. According to the arrangements for this year, the Australasian station is to have only one cruiser instead of two; the South American station one small cruiser instead of the three stationed there last year; the China station will remain as before, with one big and three small cruisers; whilst the East and West African stations are each to have two.

The home cruiser squadron was notably strengthened at the beginning of the year by the addition of the *Scharnhorst* and the substitution of the *Gneisenau* for the *Friedrich Karl*. It thus comprises, besides the two ships named, the *Roon* and the *Yorck*, all four of which are first-class armored cruisers, and also the smaller cruisers *Danzig*, *Koenigsberg*, *Hamburg*, *Berlin*, *Lucbeck*, and *Stettin*.

The *Scharnhorst's* career began unfortunately. Whilst cruising off Buelk, in Kiel Bay, she ran at full speed on to a rocky bank, whose depth at low water was marked on the charts as forty feet. The result was that she tore a hole one hundred feet long and a foot wide in her double bottom. Several of her stokeholds immediately filled, and the cruiser was saved from sinking only by prompt closing of the collision bulkheads. She afterwards proceeded under her own steam to Kiel docks, where she will have to lay up several months for repairs.

The authorities are very reticent about the damage she has sustained. A complete revision of the charts has been ordered, the existence of the bank being very dangerous to the numerous warships continually cruising in the vicinity.

The first of the units of the new torpedo boat flotilla, numbered from V 150 to V 161, has been launched from the Vulkan works, and the remaining eleven are to be completed this year. When all are launched Germany will have six torpedo boat flotillas, each comprising twelve boats of 400 tons or more displacement. The Schichau, Germania, and Vulkan yards now have facilities for turning out twelve torpedo boats yearly under ordinary conditions, but if called upon to push the work forward they are capable of doubling the number. The artillery carried by torpedo boats is from now on to be largely developed. They will in future be armed almost as strongly as gunboats, the experience of the Russo-Japanese war having taught the necessity of giving them more gun power than has hitherto been the case, so as to provide for the event of two hostile torpedo boat flotillas coming in contact. Searchlights are also to be fitted on all these small craft.

The construction of submarines on the lines of the *U 1* is to be proceeded with this year with great rapidity: the number to be laid down has not been made public, but it is known that the Germania works and the Imperial yard at Kiel are each to build several of these vessels. A total of \$2,500,000 is to be spent on them during the twelve months, and each year afterwards it is proposed to devote \$3,750,000 to this branch of the navy.

It has been decided by the Marine ministry to strengthen the torpedo armament of vessels of all classes now under construction or to be laid down, trials in the German and other navies having proved that the fighting value of a warship can be greatly increased in this particular at quite inconsiderable cost. At the same time the number of small quick-firing guns intended for protection against the attacks of torpedo boats is to be largely added to, as, owing to the increased speed of these small craft, the task of driving them off has become more difficult. Details of the intended changes are, however, not available.

A most important step is to be taken shortly by the Imperial navy yard at Kiel, where turbine workshops are to be erected, in which turbines for the new armored cruisers are to be constructed. At the same time every

effort is to be made by the naval authorities to develop the power of the turbine, which is regarded as only in its infancy. It is hoped that the experience gained in the new workshops will help the German navy to the acquisition of a turbine peculiarly its own, and thus relieve it of the undignified necessity of utilizing a foreign system. As the fitting of turbines to German battleships is probably a matter of the very near future, such a discovery would be hailed with delight by naval men.

A change of the greatest utility to the naval constructor's department is to be effected this year, when a testing basin for models of warships is to be built for the government. Until only a few years ago not a single basin of this kind existed in Germany. Then a private testing basin was erected at Charlottenburg, which was placed for three months every year at the disposal of the government. The great steamship lines also had basins, but these were always so much in demand for the companies' own purposes that the navy department obtained no benefit from their existence. With the rapid development of the fleet and the proposed fitting of turbines in battleships, the government has now seen the absolute necessity of providing a basin to be used solely for naval vessels, and the appropriation for it is included in the budget bill.

Steady progress is being made with the fortification of Helgoland, on which \$250,000 is to be spent this year. Similar sums are to be appropriated annually for this purpose, whilst \$500,000 per annum is to be allocated to the construction of a fortified harbor whose total cost is estimated to reach eventually \$8,000,000. This harbor will be of enormous strategical importance, as a great flotilla of torpedo boats and other small craft will be able to use it as a thoroughly protected center from which to make dashes at any enemy who might be threatening the mainland.

Shooting practice, which has increased by leaps and bounds in the German navy of recent years, is to be carried out this year on a more extended scale than ever. The appropriation in the budget amounts to \$1,336,850, an increase of \$200,000 over last year. There is a consensus of opinion that good shooting and the ability to pour in an overpowering hail of projectiles at the opening of an engagement are all-important. It is pointed out by officers who give gunnery preference over seamanship, that, if a ship's artillery has once been silenced,

the fact that through good handling she remains afloat with virtually uninjured armor does not count for much, for at the end of the fight she will either have to strike her flag during the pursuit, or sacrifice herself by blowing up her magazines.

Twenty-four knots an hour is to be the minimum speed of the new armored cruisers now under construction at Kiel and Hamburg, and also of all vessels of the type laid down in future. The demand for speed in these ships increases with every new construction. Only ten years ago, when *Fuerst Bismarck* was built, 18.7 knots was regarded as a capital performance. Since then, however, engine power and speed have constantly increased. The *Prinz Heinrich* covered 20 knots, the *Prinz Adalbert* and the *Friedrich Karl* attained 20.5, the *Roon* can do 21 and the *Yorck* 21.5; whilst the latest addition to the squadron, the *Scharnhorst*, was credited on her trial trip with no less than 24.1 knots.

Increased responsibilities are beginning to tell on naval engineers, who have recently retired in very large numbers and at a much lower age than formerly, suffering in most cases from nervous complaints. Many of these officers, owing to their early retirement, are entitled to only very meager pensions, which are based on the pay of the rank. Complaints have been raised in many quarters that, after giving the best years of their lives to the service and ruining their health, naval engineers are often placed in very straitened circumstances. The government, recognizing the justice of the complaints, has decided in future to make a sea-going allowance in addition to pay to all naval engineers, and henceforth pensions will be based on pay and allowances combined. The decision is greatly appreciated by this deserving body of officers.

FUTURE FRENCH BATTLESHIPS

PARIS, February 1.

The Superior Council of Marine was convoked by order of the Minister, last October, to discuss several questions of personnel and material that are of great importance to the future of the French navy. In regard to material, the question was to settle on the characteristics of our future battleships, which are to be laid down after the six ships of the *Danton* series. It is necessary not to lose sight of the naval program if the intention is to maintain a reasonable power, and not be left too far behind by other nations. This is the more important for us because indecision and delays have removed us from

the second rank in naval power, which we held for so long. As to a naval program, our role is less easy than that of England, which has her path plainly marked out by the attitude of other powers. Along with her "two power standard" she builds so rapidly, and her manufacturing equipment is so perfect, that she is assured, whatever happens, of maintaining the lead required by the nature of her policy. France builds much less quickly, and is less able to slacken construction because of the fact that between 1897 and 1907 she has turned out the smallest amount of construction of any of the powers. During this period our naval budget has increased only 6 per cent, while that of the United States has increased 84 per cent, that of England 23 per cent, and that of Germany 73 per cent.

Here are, in summary, the results of the discussions of the Superior Council in regard to our future battleships:

First: Displacement: 21,000 tons.

Second: Offensive power: Two calibers of large guns; no intermediate battery; 4-inch guns for the light battery; four submerged torpedo tubes. The armament will consist of four 12-inch, twelve 9.5-inch, and eighteen 4-inch guns. In regard to projectiles the Superior Council holds to the armor-piercing shell as against a shell carrying a large charge of explosive. Each big gun will be provided with 100 rounds of ammunition; the 4-inch guns will have 400 charges each.

Third: Defensive power: Armor belt 9.85 inches thick. Armor 2.36 inches thick for the bases of the smokestacks and the ventilating tubes. No vertical anti-torpedo armor. Readoption of the Bullivant torpedo netting.

Fourth: Speed: 20 knots.

Let us examine these qualities closely, taking displacement first. Hitherto a displacement of 21,000 tons has been reached only in the projected Japanese battleships. Undoubtedly increase in displacement means increase in power. But on the other hand these 21,000 ton battleships will necessitate large accompanying expenditures,—larger dry docks, a greater depth of water, suitable supply ports—that is to say a modification of the equipment of naval arsenals must be made simultaneously with the construction of the new ships. This heavy outlay must be added to the estimated cost, 60,000,000 francs (\$12,000,000) each, for the new vessels. Are we being merely dragged along in the general movement which is urging all the powers to outbid each other in the matter of displacement? And will the expected offensive power of these costly floating fortresses justify this great increase in displacement? We shall try to determine this.

Offensive power: More than ever today offensive power is the ruling consideration in fighting ships. Battleships must be provided with formidable artillery; and we are to understand by this word "artillery" not merely the caliber and power of guns, but also their more or less effective arrangement, and even the skill of the men who fire them. The decision in regard to this very important factor was the culminating point of the consultation of the Superior Council. That body had before it as guides: England, which is arming her future battleships of the *St. Vincent* type with ten 12-inch guns and a torpedo battery of 4-inch guns; the United States, ten 12-inch, and 3-inch light guns; Germany, sixteen 11-inch, and a light battery of 3.5-inch guns. These three powers, therefore, have discarded the intermediate battery. Is it also necessary to discard this battery in our six projected battleships? A year ago almost all naval men would have answered in the affirmative. But to-day it would seem that we must be less positive. The intermediate battery, at any rate, has advocates whose support of it has created something of a sensation.

When England built the *Dreadnought*, immediately after *Tsu-Shima* and made it a single caliber, all-big-gun-ship, Lieutenant Domville, R.N., in a study of the lessons to be drawn from the Russo-Japanese war, declared himself in opposition to the all-big-gun-ship, and argued for an intermediate battery of moderate range. At *Tsu-Shima*, he declared, there were the same number of large guns on the Russian and Japanese fleets; but the Japanese had many 6-inch guns, which did much to obtain the victory. In conclusion, Lieutenant Domville proposed, as an armament for a battleship, eight 12-inch guns and sixteen 6-inch. Combining this offensive power with a speed of 19 knots, he arrived at a displacement for a battleship, of 18,000 tons. The cost is naturally much less than that of a 21,000 ton ship, and the saving is something to be considered. Some French officers of high reputation agree with Lieutenant Domville that nothing is equal to a dense sheaf of gun-fire enveloping a hostile ship in a blanket of continuous flame. Now, the rapidity of fire of the intermediate battery allows us to get this result. Moreover, as we have just seen, the adoption of this intermediate caliber would allow of our not exceeding, in our future battleships, the displacement of the *Danton* class now building.

But disregarding these considerations, the Superior Council has resolutely excluded the intermediate battery. In regard to heavy guns it had a choice between the 12-

inch and the 9.5-inch. Some members of the Council considered the 9.5-inch large enough. The use of this one caliber would allow of designing a ship with a less displacement than 21,000 tons. It is calculated that the difference in weight between a turret for a pair of 12-inch guns and a turret for a pair of 9.5-inch is four hundred tons. The Council adopted two large calibers, and this decision causes surprise in the naval world. One can understand a single large caliber, or a large caliber and an intermediate caliber; but two large calibers look surprising. The Superior Council set out from the principle that if battle was joined at long range—say, eight thousand yards—it would be necessary at that distance to use armor-piercing shell. In that case, the 12-inch gun is indicated, rather than the 9.5-inch. But as fleets approach each other, it would be necessary to employ a gun with a more rapid rate of fire than the 12-inch, in order to cover the enemy with blows and with flame of a very high temperature.

Nevertheless, the double large caliber has not many partisans. For one can always say, If you do not adopt the 12-inch gun because its fire is too slow, take the 9.5-inch; if the 9.5-inch is not heavy enough, take the 12-inch; but do not mix the two. The advantages of a single caliber are well known,—ease of manufacture, storage, handling, supplying of the guns during battle, simplicity of instruction for the personnel, easier management of fire because there is no change of projectiles during battle. Many officers advocate the single caliber. Those who have this year left the Superior Naval School, when asked for opinions on the armament of the future battleship, have for the most part declared themselves in favor of the single-caliber all-big-gun type. It seems that we shall have to come to it, and, to complete the simplification, to adopt a uniform type of fighting ship and a single projectile.

The Superior Council also decided the question of projectiles by recommending the continued use of the armor-piercing shell. The question is, What do we want to accomplish? Shall we try to sink the enemy's ship by piercing her armor, or to disable her by enveloping her in a storm of shot, flames, and noxious gases. In general, naval men prefer the second solution; they argue for shells with large explosive charges, which, bursting on the target, will loosen armor plates, asphyxiate the gun-crews and even the stokers in the depths of the ship. In the battle of August 10, the Japanese fired at long range without producing any decisive effects. Togo seemed

anxious to safeguard his ships, and to have taken as his motto: Hold the enemy off. At Tsu-Shima the opposing fleets fought at shorter range, and the Japanese used shell carrying large charges of explosive. On the whole it is easier to destroy a squadron by this latter process than by attempting to penetrate its armor with explosive armor-piercing shell in order to sink it. For the present, however, we shall continue to follow this method, using a 980 pound shell containing 28½ pounds of melinite.

The number of rounds per gun carried is also an important factor to determine. It has been said before in this correspondence that it was necessary at all cost to increase the number of charges. During the recent war the Japanese carried 60 rounds for each large gun; this number has now been raised to 80. According to Lieutenant Domville, 150 charges should be provided for big guns, and 300 for intermediate. In any case, as the rapidity of fire increases, the supply of ammunition must be made larger. This has been required by the Superior Council in our future battleships.

The small guns ought to be light enough to permit of very rapid firing at a swiftly moving target. The 4-inch gun recommended by the Superior Council seems too weak in view of the fact that the powers are going beyond this caliber to keep pace with the growing size of destroyers. Some other powers have already adopted the 4.7-inch gun. If competition on this matter should bring us to adopting the 5.5-inch gun we should be returning to the armament of the *Carnot* series of French battleships of nearly fifteen years ago. The 5.5-inch gun would be the heaviest of the light battery, or the weakest of the intermediate guns.

Defensive power: The recommendations of the Superior Council would give the 21,000 ton battleships an armor belt of 9.85 inches thick amidships, but no interior armor against torpedo attack. Armor of this latter sort will be replaced by an appropriate system of compartments, which will require a smaller portion of the displacement than would armor. In the *Danton* class the anti-torpedo armor consists of two metal partitions separated by a space. If a torpedo ruptures the outer partitions, the inner one will resist, and it would be necessary greatly to increase the explosive charge of the torpedo to break down this inner barrier. This follows from the fact that the pressure upon a resisting wall does not increase directly with the size of the explosive charge, but only with the square root of the weight of the charge.

Our future battleships will be provided with Bullivant torpedo nets. England, Japan and Russia have always made use of this protective appliance. The French navy, on the contrary, abandoned nets long ago because of the excessive weight they add to a ship. Also, these nets are charged with causing (when they are in place) a considerable lessening of speed; they may become entangled with the propellers; and finally, they are easily pierced by automobile torpedoes whose war-heads are provided with a cutting mechanism.

Speed: A gain of one knot in speed is the only tangible result of the increase in displacement, in comparison with the *Danton* class. Admittedly, speed is an important factor, but also a capricious factor, which often disappears at the very moment when it is most needed. The heating of a portion of an engine, delay at the coal bunkers, or merely an inferior quality of coal,—any of these will prevent the ship reaching her maximum. Moreover, speed is the most costly element. I do not pretend to instruct anyone on this matter, but as the figures speak for themselves, the reader may well consider a numerical illustration. We tried to give the armored cruiser *Ernest Renan* one knot more speed than the *Léon Gambetta*. This simple modification cost us 3,000,000 francs (\$600,000), 1,100 tons in displacement, and 8,500 horse-power,—and the *Renan* carries four less 6.5-inch guns than the *Gambetta*. This is a price that seems out of all proportion to the gain to be had from an increase of one knot in speed. Let us repeat the statement,—for 3,000 tons and \$2,000,000 we shall gain one knot in speed. It is to be regretted that this 3,000 tons was not devoted to offensive power.

The matter, it may be admitted, is in suspense. The Superior Council has only expressed an opinion; so much so that, according to the declarations of the Minister of Marine, the matter will not be decided without the assent of Parliament. Plans have been made in advance for a single caliber, big-gun ship. If Parliament decides in favor of the latter system, there will be no groping or uncertainty or loss of time. The scheme is ready. It is clear enough that the decision of an untechnical legislative body on an issue like this is not decisive of the merits of the two types of ships; but it will save the Ministry of Marine from some perplexity. We shall perhaps discover in some future war whether the plan which may be actually adopted is better or worse.

THE CRUISE TO THE PACIFIC

(Special Correspondence of THE NAVY from the U.S.S. CONNECTICUT, flagship of the Commander-in-chief)

BY ENGLE WOOD, U.S.N.

FROM HAMPTON ROADS TO TRINIDAD

PORT OF SPAIN, December 23, 1907.

In the excitement attending an event so picturesque as was the sailing of the fleet from Hampton Roads, one is liable to overlook local details; and it was only when we settled down to our ocean-going gait on December 16, that I had opportunity to study the attitude of the ship's company towards the trip. At luncheon that noon in the Wardroom mess one would imagine we were homeward bound instead of being outward, so marked was the prevailing gaiety and good spirits. On other occasions that have come under my notice when the fleet went south, the parting from relatives and friends had always for a day or two a rather depressing effect upon the mess; but on this occasion no evidences of such a feeling were anywhere manifest. All seemed to think that the experience would not only be of service in a professional way, but that it would be sure to bring with it very many features of interest and pleasure. Nor was this view confined to the quarterdeck. The men were even more enthusiastic. They stood about in groups when the smoking lamp was lighted and discussed the probabilities the cruise held out to them. Here and there some seasoned shipmate talked of Trinidad and Rio and Montevideo, or hinted mysteriously to the inquiring rookies that "things would be doin'" when old King Neptune came aboard at the "crossin' o' the Line." The men undoubtedly hailed the whole thing as a "bully" diversion, which would give them a change from old-time routine and enable them to see "a bit o' the world."

At a little after three in the afternoon the fleet formation was changed from column to "line of divisions left oblique," which means that the sixteen ships divided themselves into four parallel groups. This order was maintained till the following day, when certain elementary maneuvers were gone through. The weather conditions which contributed so much to the auspiciousness of our departure remained undisturbed. The sea continued smooth as a lake, the sky was clear and cloudless, and the Gulf Stream, usually so turbulent at this season of

the year, welcomed our crossing with a smile. The nights, too, were crisp and starlit, and the picture presented by the ships strung out in column to the far horizon, with their running-lights, their Ardois signals, and their blinking electric semaphores, was as wondrously beautiful as a dream city. This delightful monotony continued till Friday, when we ran into the zone of the trade winds. Here, under the spur of a spanking breeze, we took on sufficient motion to make us feel that we were really at sea, and the change was enjoyed hugely. We had left winter behind us at Hampton Roads, and two days later, on Wednesday morning, the crew was in white. This effect seemed strange at first, so familiar was the sight of the blue uniforms; but a steadily rising temperature made the change imperative, and the officers were glad, a day later, to follow the example of the men.

On Friday afternoon the *Missouri*, by the Admiral's order, left the column to take one of her men, who was dangerously ill with peritonitis, to the hospital at San Juan, Porto Rico; and the *Illinois* later in the evening went to Culebra, U. S. W. I., on a similar errand of mercy. Although the hospital accommodations on both ships are ample and up to date, the Commander-in-Chief felt that the men would probably have a better chance of recovery under conditions on shore, and ordered the removal accordingly. It is just such acts of thoughtfulness as these toward the men under his command that has endeared Admiral Evans to every blue-jacket in the navy.

On Saturday, for the first time since the Capes were cleared, we sighted land, and about four in the afternoon were passing between the islands of Culebra and St. Thomas. The latter is one of the Danish West Indian group. It has one of the finest harbors in the West Indies, and should have at least a passing interest for Americans by reason of the fact that more than once during the last fifty years its purchase by the United States was almost *fait accompli*. Its value as a strategic point has, however, been considerably diminished by our acquisition (as a result of the Spanish-American war) of Porto Rico and the intervening islands, the most important of which, Culebra, is

now our most easterly outpost in the Caribbean, and, with its inner and outer harbors, is considered strategically superior to its Danish neighbor. Off Culebra the fleet was rejoined by the two ships which left the previous afternoon on special duty. Sunday passed without incident, the flagship taking occasion to give an exhaustive test to some patent fuel, the results of which are considered most satisfactory. Monday afternoon saw the fleet swinging into the Gulf of Paria, through the famous Boca Grande, or Boca del Drago (the Dragon's Mouth) and at six in the evening it cast anchor in the harbor of Port o' Spain, Trinidad. The first stage in the ocean-to-ocean voyage was successfully completed.

WITH THE FLEET AT TRINIDAD

PORT OF SPAIN, December 28, 1907.

The fleet is lying out in the roadstead some seven miles off Port of Spain, in column by divisions, as it anchored on the evening of the 23d. The Gulf of Paria stretches out from it, yellow with its toll of sediment from the mighty Orinoco, smooth as a mountain lake, and mirroring in its quiet waters the circling hills of sunny Trinidad. For 'tis sunny here, just at present with a vengeance; and our men, fresh from the chill winds of the north, after a blazing noon or two, are now sighing for "little old New York" and Boston town. A week ago, when the first whisper of the tropics came to us, we rejoiced; but now that we have summer all around us, we are beginning to look forward to the biting winds that await our coming in the Magellan Strait. But Trinidad is a pleasant place, the noon-day sun notwithstanding; and in the intervals of hard work aboard ship, our men are making the most of its attractions.

From our anchorage the town can hardly be seen, so snugly does it nestle at the foot of the hills. On closer inspection, we find it a typical city of the West Indian seas, quaint in its irregularity, picturesque in its setting and its general air of tropic luxuriance, and original in its orderly, well kept appearance, its business "hustle," and its immaculate cleanliness. It is the capital of the Island, the center of its business and political life, and the home of one-fourth of its quarter of a million people. The whole island is only 1,750 square miles in area, but its importance is not circumscribed by mere size, for strategically considered, owing to its position with regard to the Caribbean, and its situation at the mouth of the Orinoco River, it is beyond question the most valuable British possession in these latitudes. Discovered by Columbus in 1498, during his third voyage, and named by him in honor of the Holy Trinity, it remained a Spanish

possession till 1797, when it capitulated to Rear Admiral Harvey of the British naval forces, and General Abercrombie. Since then it has been an English Colony, with a resident governor, a high-priced staff of Downing Street officials, and a population as cosmopolitan as can be found anywhere in the adjoining Seven Seas.

We are here in the height of the Christmas season; Christmas with a new, and strange countenance; not the Christmas of the North with its snow clad hills; but Christmas for all that, with its pleasant interchange of greetings and good will. The stores and shops are gay with greenery, and good St. Nicholas must have been a recent visitor, for his wears are displayed on every hand. Our men are ashore in large numbers,—fine, strapping, clear-eyed lads they are, and the cab drivers are reaping a golden harvest from them. The shop keepers tell us that we have come at a most inopportune time, for Christmas is followed by a three days holiday and during this time the interests of the whole settlement are centered on the track at the Savannah, where the annual meet of the Trinidad Racing Association is being held.

But it is by no means all holiday in the fleet during this visit. The colliers are being lightened of their freight; every day individual ships are out making compass corrections; and our machinists and engineers are busy inspecting, strengthening, and testing a wilderness of rods, and cylinders, and pistons, preparatory to the next big run to Rio. The ships arrived on schedule time, and will leave when coaling is completed. The destroyer flotilla was delayed owing to an accident to the *Lawrence* caused by fouling an anchor chain. As a result the boats did not get away for Para till the morning of the 26th. This delay, it is anticipated, will in no way interfere with the fleet program, for everybody, from the Admiral down, who knows Lieutenant Cone, the commander of the flotilla,—one of the ablest, and most resourceful men in the service—is confident that he will have every unit of his miniature squadron on hand to meet the fleet at Rio. The health of the men continues to be excellent. There has been a case or two of typhoid, and some measles, but nothing serious.

The Admiral and staff have been more than usually busy with routine business, and the exchange of official courtesies. On the 24th calls were exchanged between the Admiral and the Governor, and that afternoon, with several of his officers, he attended a garden party given by Colonel Swain, the head of the local military establishment. A reception was given by Admiral Thomas, Captain Hubbard, and the officers of the *Minnesota*, on the afternoon of Christmas day, and teams from the Ward-

room messes of the *Connecticut*, *Vermont*, *Georgia* and *Kansas* went ashore and played baseball. The officers of the *Connecticut* fell victims to the *Georgia*, by a score of 8 to 2, and the *Vermont* triumphed over the *Kansas* by a close margin, the result being 2 to 1 in favor of the *Vermont*. Christmas morning from eight till nine-thirty was given over to boat racing, and much enthusiasm greeted the winners of the various events. Large liberty parties were sent ashore at ten, and the usual elaborate Christmas dinner was served to those who remained aboard. In the evening Christmas celebrations were held in most of the Wardrooms. Everything has gone well here, and the ships are in prime shape. The coaling is being done rapidly,—thirteen thousand and eighty tons in all, will be taken, and on Saturday afternoon, or at the latest on Sunday morning, December 29th, the fleet will weigh anchor and start on the second lap of its long cruise, from Trinidad to Rio de Janeiro.

FROM TRINIDAD TO RIO DE JANEIRO

Rio, January 12, 1908.

On the afternoon of December 29, when the last collier had been emptied, every division in the fleet was ready for the second and longest lap of the journey. Thanks to the excellent management of Captain Ingersoll, the Chief of Staff, and to the energy of the various ships' companies, the work of coaling had been accomplished expeditiously and without a hitch. The program as prearranged had been carried out practically on schedule, and all were in readiness at the appointed time for the signal to get under way. Before leaving Admiral Evans received a letter from Sir Henry Jackson, highly commendatory of the conduct of our men ashore, and this message was sent to the commanding officer of each ship in the evening.

It was indeed a matter of much satisfaction to all concerned that everything had gone well at our first stopping place, and it augured well for the success of the whole undertaking. As a matter of fact the behavior of the men was not materially different from its uniformly high standard under like conditions. It was apparent, however, that on this occasion the men realized the necessity of more than customary discretion. It was evident that they were taking a serious view of their own responsibilities with regard to the success of the cruise, and were determined that no action on their part should mislead the peoples with whom they were to come in contact into misjudging the character and worth of American citizenship.

At four o'clock the signal to get under way was hoisted, and, under circumstances of wind and weather as aus-

picious as those which marked our start from Hampton Roads, the ships left their anchorage and, with the flag-ship as guide, steamed in column, natural order, for the Boca Grande. By half-past five the last in line had cleared the entrance, and soon afterwards we were heading on our course for the next port of call, Rio de Janeiro.

The impression accepted at home with regard to the relative positions of North and South America is that the great southern continent lies directly south of the United States. This impression is not only erroneous, but grossly misleading. By consulting a map and following the meridian which passes close to New York or Boston, down through South America we find that almost the entire continent lies eastward of the line; and if we continue our observations our surprise will be increased to find that Cape St. Roque, the extreme end of the Brazilian mainland is far closer to the African coast than it is to the meridian line in question. This being borne in mind, it can be readily understood why the fleet on leaving Trinidad took a general course of South East by South, for some two thousand miles, instead of sailing due south, as some of our newspapers, when the trip was a subject of general discussion last autumn, held that we should do.

Reckoning roundly the distance between Trinidad and Rio as thirty-four hundred miles, the most conservative estimate of the time needed to cover this route was fourteen days. This took into account contrary currents as far as San Roque, and the inevitable small accidents to individual ships which would tend to retard the fleet as a unit. Our schedule allowed thirteen days for the run, but this presupposed a steady speed of ten knots, and barred all accidents. We've had the current against us and we've had the expected small mishaps, with the result that the first estimate has been proved nearer to the actual figures than the official schedule. It took the ships exactly nine days to round San Roque. The weather was perfect the whole time, and those of us who expected to suffer from the heat and humidity were pleasantly disappointed. The Trades were blowing against us all the way, and in the evenings, especially, the breeze was always cool and refreshing. We had a swell on most of the time, and as a consequence the fleet did some pitching, just enough to be exceedingly picturesque at times, but not at all sufficient to cause the slightest discomfort. In all these nine days of sunshine and silver but three sailing vessels were sighted. Their presence, however, evoked neither interest nor discussion, for we were too many ourselves, and too big, to bother about such small fry as schooners or fishing smacks.

As for happenings in the fleet during this interval there was little of even ordinary interest. Every other day, it is true, some particular ship would burst a tube or blow a valve, and leave the column for an hour or two while the other ships, to suit the circumstances of the case, would reduce their speed till the trouble was repaired and the column was complete again. Outside of minor happenings of this nature the trip was almost devoid of interest till we approached the domain of King Neptune. The navigator of the flagship, Lieutenant Commander Day, was slightly indisposed for something over a week and confined to his room, but apart from this isolated case the health of both men and officers was excellent. The regular routine of ship life and ship drills went on from day to day, and the various processes by which a "rookie" is fashioned into a full fledged sailor-man were constantly in evidence. The men took to their work with enthusiasm, and the staleness that often goes with the monotony of a long cruise was nowhere to be seen. At twelve o'clock each day the noon position was plotted, and the coal report from individual ships received on board. This latter, usually a matter of the mildest concern, and that only to the engineers, became an item of serious interest to the Admiral and his Chief of Staff, for an extra heavy expenditure by one or two particular ships might seriously interfere with the speed of the whole command, since the speed of the fleet is regulated by that of its slowest ship. As time went on, and it became apparent that there was not the slightest danger of a shortage in this respect, the interest of the ship's company became centered in the approaching visit of Neptune Rex.

CROSSING THE LINE WITH "NEPTUNE"

On Friday, January 3, at eight o'clock in the evening, we received the first official intimation of Neptune's advent. A blazing beacon was sighted on the starboard bow of the flagship, and as the 1st Division drove by, it passed down between the columns like the fiery cross of the Highland Clan, its wierd glow lighting as it went the white sides of the big ships till they loomed against the darkness like giant ghosts. It was Neptune's herald sent to serve notice on the fleet that it was about to enter the realm of the ancient sea kings. Saturday passed, and Sunday too, without further incident, but as we were to cross the line at midnight we knew that Neptune's coming could not be long delayed. Sure enough, at 7:55 P. M. on Sunday evening the officer of the deck was suddenly accosted by a strange looking individual in plug hat, frock coat and auto-goggles, who represented himself as Neptune's Secretary, presented his card, and asked to see the Captain. He was ushered into the genial

presence of Captain Osterhaus, who received him with much honor and offered him the hospitalities of the cabin. Gracefully apologizing for his intrusion, Neptune's Secretary at once ascertained the name of the ship, its course and ultimate destination, inquired most solicitously for the Admiral, sent his best wishes to all on board who had paid due tribute to the king, his master, and gave formal notice that Neptune himself, with a full muster of courtiers and attendants, would come on board the following morning at eight sharp.

The visit had of course long been anticipated, and a throne of wondrous magnificence had been erected on the forward turret by Chief Carpenter's Mate Cossey and his assistants. Under this was a platform shaped like a dais, but in its general air more suggestive of a scaffold than a royal foot-stool, on which three curious looking chairs were aligned in row and so made that by means of an ingenious mechanical contrivance, the occupant of either could be tilted backwards into a huge canvas tank. This tank was in all respects a masterpiece, and reflected much credit on the brilliant young naval constructor who prepared its plans and specifications. Its erection was entrusted to Chief Boatswain's Mate Jenkinson and a picked staff. It was built with a specially imported weave of brown canvas, on hardwood supports, was thirty feet long by fifteen broad and designed to draw, when in operation, a mean depth of four and a half feet of water. On mildly inquiring its probable use I was given a most significant smile by one of the bystanders, but beyond this no information was vouchsafed me. The full roster of those who were about to cross the line for the first time had been carefully made out long prior to these preliminaries, and all were officially notified that their presence would be demanded at the opening of the Royal Court. So business-like, and formal, and tantalizingly mysterious were the whole proceedings thus far that more than one of us who had never before been nearer than Broadway to the Equator spent rather an uneasy night, vaguely speculating on the nature of the toll which Neptune would demand of us the next day, and seeing with our mind's eye the ever recurring spectre of the scaffold and the chairs and the ominous canvas tank. We were all up betimes next morning in best bib and tucker, anxious, expectant, and strangely subdued. Breakfast was partaken of sparingly, and for once the mess attendants showed signs of abnormal activity. The Captain himself was on the bridge, and a bright look out was kept on the port bow, and quarter.

At precisely one minute past eight Neptune was sighted advancing rapidly, his trident a-gleam in the sun-

light, his chariot drawn by dolphins and other strange looking sea monsters; a numerous party following close behind. The engines were reversed, the ship lay to, and in a moment our forecabin was covered by the strangest parcel of men in motley that ever scorned a landlubber or spun a sailor's yarn. Neptune, a tall man, and venerable as became his years, was dressed in a long green robe of strange silken stuff. His crown of beaten gold was on his head, and in his right hand he carried his dolphin-headed staff with the easy grace of a bishop in *partibus*. With him was a simpering miss who looked like his granddaughter but who strangely enough turned out to be Amphitrite, his wife. Amphitrite's bearing on this and subsequent occasions during her short stay on board was severely criticized, for she was seen to smile just a bit too sympathetically when our handsomest midshipman was paying his respects, and was caught by no less a person than the Flag Secretary himself in the very act of winking at the Boatswain. Her costume of Tyrian serge *pailletée* with coral blossoms, was cut *en princesse* and worn with graceful abandon. She leaned upon the arm of her ancient spouse, and as she took her seat in a specially provided triumphal car it was noted by a distinguished war correspondent present that she was web-footed. The bears of the boarding party (exceedingly ferocious in appearance, with long shaggy coats and uttering deep, guttural cries) harnessed themselves to the chariot, and with the ship's band leading, the whole assemblage moved in riotous procession to the quarterdeck where the Commander-in-Chief, with his brilliant staff, and Captain Osterhaus, the commander of the ship, were waiting to receive it.

During the interchange of official greetings between the Admiral and his distinguished visitor, it was possible for the first time to get a close and satisfactory view of King Neptune's attendants. His navigator was particularly noticeable,—a little bearded man, stockily built. With a sextant strung over his shoulder, and a most primitive type of marine glass dangling from his belt, he looked the very soul and embodiment of those pirates who roamed the Spanish Main in the days of Hawkins and Frobisher. Beside him stood the judge, a tall, grim-looking, cotton-headed individual with a most merciless cast of countenance. Immediately behind was the doctor, a sinister-looking ruffian, with the instruments of his profession in unpleasant evidence. Inquiring casually the occupation of a certain harlequin who was armed with a huge pincers, I was told that he was Neptune's family dentist. The Secretary, who never left his master's side, and whose acquaintance we made on an earlier occasion, was ac-

companied by two piebald miscreants with expansive portfolios whom he called his assistants. In the back-ground was the less responsible section of the royal ménage. This consisted of an interesting assortment of barbers, latherers, bears, and policemen, whose presence, under the circumstances, was more associated with the mysteries of initiation than with the care and protection of the Royal Person.

The conference between Neptunus Rex and Admiral Evans was most cordial all round.

"I knew your grand-father well," said the Admiral.

"So I believe," replied his majesty. "I often heard him speak of a little incident which occurred when you first paid tribute to him as a Midshipman."

"What did he die of?" asked the Admiral, evidently wishing to change the subject.

"Drink," said Neptunus, brushing away a tear.

"A truly royal dissolution!" remarked the Secretary, butting in.

At this moment the Captain advanced, and having been introduced by the Commander-in-Chief, was addressed by Neptune in the following strain:

Here's pleasant greetings, Captain,
Your friend I wish to be.
I am Neptune hold, well known of old,
As ruler of the sea.
Good cheer to you and all your crew,
And welcome to my home.
May fortunes best on each one rest,
Wherever he may roam.
On the ocean wave, where live the brave,
Good friends we're bound to be,
For in these domains where Neptune reigns,
Is hospitality.

This is my wife, my pride, my life.
My sister sweet, so fair, so bright,—
Queen of my heart till death us part.
Is blushing lovely Amphitrite.
Her loving, wifely manners, sir,
Are something quite sublime;
No matter what her object is,
She wins out every time.
Her kitchen oratory, too,
Has gained her many a tussle.
For if it lacks sufficient strength,
She backs it up with muscle.
When hurricanes and angry storms,
Disturb the mighty ocean,
'Tis Amphitrite who down below,
Is stirring a commotion.
There is my son, my hopeful one,
Heir to my vast domains.

'Tis he shall wield the sceptre, sir,
 When Neptune no more reigns.
 A chip from out the old block, sir,
 A lad both strong and wise,
 Of a happy disposition too,
 He laughs, sir, when he cries.
 His name is IT. It is his name.
 He meets my every wish.
 He swims, too, Captain, like a duck,
 And drinks just like a fish.

This is my secretary, Cap,
 He is noble, grand and great.
 It's an honor, sir, to meet with him,
 You should appreciate.
 This is my family doctor, sir,
 Quite skilful with the knife,
 He cures old age and broken hearts,
 And brings the dead to life.
 And this is my family dentist, sir,
 In business never makes a blunder.
 At pulling teeth he isn't much,
 But in pulling legs, a wonder.

This is my private barber, sir,
 A clever fellow he,
 Who'll scrape your close acquaintanceship,
 With charming modesty.
 These are my soldiers, sir, my guards,—
 The deadheads of the court!!
 All jolly, reckless fellows they,
 But over-fond of sport!
 And so, to you, and your gallant crew,
 I royal welcome give,
 Good fortune's cheer, for each man here,
 With many years to live.

To every Tar that has crossed the bar,
 I a welcome hand extend.
 The very best that I possess,
 To them I'll gladly lend.
 But by the Gods of ancient Greece,
 That now look down upon us,
 The pressure of so many "frocks,"
 To me is quite obnoxious.
 The ancient law and custom here's
 No partiality,
 And hubbers entering my domains,
 Must initiated be.

So Cap, deliver up the Lubs,
 Let's now have something doing.
 I see my men with towering brows;—
 I fear there's trouble brewing.
 It's waste of time to *parley* vows,
 We must maintain the law, sir!
 This beeping quite disgusts us both,
 So I'll knock off my claw, sir!
 But if this law you dare ignore,
 If Neptune you defy, sir,

And with the customs of my realm,
 You care not to comply, sir!
 Your ship shall not pass onward, here,
 Ten thousand gales shall stop her!
 And you and her I'll send below
 To Davy Jones's locker!

Upon the completion of this truly remarkable ode, the Captain, in a few well chosen words, took proper notice of the sentiments it expressed, and without more ado turned over to the visitors "all officers, seamen and marines, attached to and serving on board the U. S. S. *Connecticut* who thus far, in the pursuit of their lawful occasions, had failed to pay due tribute to, etc., etc., etc. Neptune replied by bowing profoundly, then swinging Amphitrite on his better arm with his attendants in oblique formation around him, he returned to the fore-castle, where were awaiting his good pleasure the throne of state, the platform with its semi-automatic chairs, half a dozen suspicious looking buckets, and the tank, no longer empty, but filled to the brim with surging, swishing sea water.

A flourish of trumpets and Neptune had taken his seat. The Judge and the Secretary and the Secretary's assistants, the Dentist, the Doctor, the Barbers, the Latherers, and the Navigator mounted the platform and made such disposition of themselves thereon as would best fit in with the purpose of their various works and pomps. Buckets were examined and contents noted. Chairs were tested, razors sharpened, nozzles adjusted, syringes filled, and a long file bearing the name and official rank of all candidates was carefully scrutinized by the Secretary and the Chief of Police. The Bears at this juncture waddled on the platform, and, howling frightfully, leaped en masse into the tank. Here for some minutes pandemonium reigned. They snapped, fought and wrestled among themselves, and were quieted only by Neptune himself, who flinging his trident fairly among them, impaled a large bear who seemed to be head and front of the whole offending. Another flourish of trumpets, then silence.

The Secretary advanced, saluted stiffly, and in raucous tones called upon the first victims to advance. A perceptible shiver ran through the line of waiting candidates. In the fighting tops, along the upper bridge, around the gallery of the conning tower, on the turret, the fore-castle, and backed up behind the line of the lower bridge where the Admiral sat, fiercely eager groups watched and waited. The band struck a lively two-step as the head of the land-hubber column appeared, marshalled by a platoon of sea police. Officers came first, according to rank, and

the excitement became intense as a portly and handsome member of the staff mounted the ladder and stood before the Court. The bears growled ominously, the Judge looked puzzled, and a hurried consultation took place, with the result that the officer in question was told a forfeit would be accepted from him in lieu of formal initiation. He, like a wise man, naturally jumped at the alternative and at once named the ransom. (The nature of the ransom would not be communicated.)

"How many did he offer?" said Neptune to the Judge. "Twelve! your majesty," answered the Secretary.

"'Tis well," said the King. "Let that amount be the minimum for each of the Wardroom and Staff, but We are graciously pleased to accept *six* from the Warrant and Steerage Messes."

These stipulations having met with the approval of all concerned, the officers in line were soon disposed of, and the real work of the day began. Conducted by two huge constables, and fiercely resisting, the first victim was led to the platform. He was a big, broad-shouldered, powerful man attached to the Engineer Force, and evidently a favorite with his shipmates. Arriving before the executioners, and deciding that discretion was the better part of valor, he gave his name, and took his seat with a good natured smile. In a moment he was set upon by two latherers with whitewash brushes, who covered his face with a liquid mixture of flour and salt-water soap. Into his eyes, into his nose, into his mouth and ears and over his head it went till he looked like an animated dumpling, sneezing, coughing, and spluttering violently. A barber now took him in hand, and with a wooden razor that resembled a butcher's cleaver shaved him with vigorous stroke upon stroke. The crowd shouted and shrieked with laughter. The victim squirmed and groaned, while the bears danced round in fiendish anticipation. The tonsorial operation was over in much less time than it takes to tell, a lever was drawn back and over went the occupant of the chair, turning a complete somersault. Splash! and he disappeared. Hardly had he drawn breath on coming to the surface when the bears were on him. Under he went again, and yet again, struggling fiercely till the water foamed and the crowd yelled itself hoarse. One more ducking and he was let go. Climbing up a near-by ladder he looked back at his tormentors, and, never a bit the worse for wear, joined in the general laughter that marked the next victim's entry.

And now the fun waxed fast and furious. All three chairs were in use. Barbers, Latherers and Policemen were as busy as nailers, and the bears beneath had a riot

of victims to batten upon. The audience revelled in the tumult, and each candidate, after having passed under the yoke, returned and sought the nearest coign of vantage from which to enjoy the miseries of his friends. Occasionally a victim would try to ease the situation by jumping into the tank before the attentions of the Barber were completed. He was invariably hauled forth, amid jeers, and chaired again. Sometimes a ship's character, popular or otherwise, would take his seat and the crowd would yell with glee: "Soak him!" "That's right!" "Give it to him good and hard!" "Hurrah!" And the unfortunate in question would come to the top in the grasp of two burly bears and struggle for his life. Again, "Randell! hey Randell!!" "Here comes Randell!" and another cheer would go up. "Ah! Randell you're gettin' it now!" "How d'ye like the soap, eh?" "That's right, soak it to him!" Then a voice from the tops: "Say fellows they're bringing Mike Reilly!" Another shout would greet Mike's appearance and over into the tank he'd go with the rest. A lull for a moment, when the barbers rest and Amphitrite seizes the occasion to light a big black cigar. Then somebody cries out: "Where's Dinis?" "Get Dinis and put *him* through!" This appeal is greeted with enthusiasm, and four policemen run to fetch Dinis. Dinis, a porker some two months old, and the ship's mascot, is slumbering peacefully in the lee of a potato locker when rudely awakened by his captors. He squeals and wriggles and kicks when taken up, and tries with all his might to free himself. No use. Struggling and yelling he is taken to the platform, lathered and shaved, and amid a whirlwind of cheers tilted into the water, ducked twice, and then passed up, with not a squawk left in him, to half a dozen waiting hands. Dinis was a "shell back" at last, and the whole ship's company applauded him roundly as he trotted off to finish his interrupted snooze.

By noon over six hundred had gone through the mill, and the policemen were busy rounding up stray delinquents. These were ferreted out of their various hiding places and carried in triumph to the foot of the throne. No mercy was shown them. Their initiation was both elaborate and prolonged, and, when the last,—dripping, blue and bedraggled, climbed out from among the bears he looked fully convinced that the whole process was neither a gentle nor a joyous one. When all had been accounted for, and the spectacle seemed to be about to close a most extraordinary thing happened. The Doctor, under the influence of some temporary aberration, laid violent hands on old Neptune himself and flung him in among his own household bears. This incident was received with

immense enthusiasm. "Neptune came out smiling all over, and ordered the bears to throw in his whole cabinet. The bears leaped to the platform, and amidst wild rejoicing Barbers, Latherers and Secretaries were soon covered with flour and soap suds, shaved most thoroughly and thrown neck and crop into the water. No one escaped, not even Amphitrite. The Doctor was fished out a most woe-begone sight, and the little Navigator looked like a piece of wreckage. Pulling themselves together, with rare good humor they went back to the platform, resumed their separate badges of office, announced to the dripping majesties above them that the ceremonies were over, and respectfully awaited the royal pleasure.

Neptune hereupon arose, doffed his crown, and made one of the best after dinner speeches it was our good fortune ever to have listened to. He thanked the Admiral and Captain, the officers and men for the cordiality with which he was received, and wished both the flagship and the fleet a glorious trip to the Golden Gate. He then, amidst loud and prolonged cheers descended to the fo'c'sle where he was immediately surrounded by his faithful bodyguard. A blare of trumpets once more, another ringing cheer from the men, and the royal procession started in column, natural order, for the starboard bow. Here a great dolphin-borne barge such as Cleopatra might have envied, rose up from the sea like Excalibur of old, the King and his cohorts boarded it in silence; graceful as a dream it dipped submarine-wise to an oncoming swell, and with a final wave of his silver trident, Neptune and his merry men "dropped into their vast and wandering" home.

"That," said the Chief Boatswain, when all was over, "that was the best initiation I have seen in thirty years!" "It was my first," said the Electrical Gunner, "and I don't mind if I have to wait thirty years for another."

"I saw that they gave you all that was coming to you," remarked the Bo's'n.

"You bet," said the Gunner, dryly.

With the passing of Neptune Rex, normal conditions were restored, and the old routine resumed. On Tuesday, the seventh, at four P. M., we turned due south for Rio, and from this on things went merry as a marriage bell. The current was no longer against us, weather conditions (if possible) improved, and we rolled off our standard ten knots with a daily coal allowance to spare. Even now the Admiral, had he wished, could by speeding up a bit, have picked up his lost time, but he preferred to proceed at an economical pace and wait for another lap to run up on

his schedule. The days passed quietly, but without the faintest trace of monotony, and the general good spirits of all on board showed never a sign of flagging. On January ninth we reeled off 263 knots, and on the following day 250. This meant that we would be barely a day late in anchoring. On the night of the tenth what might have been a serious affair, but which turned out to be a rather amusing incident, threw the 1st and 2d Divisions of the fleet into a mild commotion. A local trader—a barkentine—with no lights burning, bore down upon the third ship of the 1st Division before she was discovered. Then those on the barkentine woke up, lit their lights, and, seeing the ocean covered with huge ships, lost their heads completely. They got in among the ships, and Uncle Sam's big vessels had to do the finest bit of dodging they have done since they were commissioned to avoid the little *Brazilero*. Eventually, they succeeded in getting out of his way, and he scurried into the night like a frightened fox. In the early morning of the eleventh there was a cry of "man overboard" on the *Missouri*, and some beautiful searchlight play resulted. It was a false alarm, fortunately, and after a little general excitement things settled down and the fleet continued on its way. Nothing further worth recording occurred till the morning of the twelfth, when Cape Frio loomed up on the starboard bow. Shortly after, the Yankton, which had preceded the fleet by some days, was seen heading out to meet us, and at nine o'clock her Commander, Lieutenant Gherardi, came aboard with the anchorage charts and some important dispatches. By noon a Brazilian squadron under the command of a rear-admiral came out to welcome us, and an interchange of courtesies was signaled between the flagships. Approaching the entrance, the fleet formed single column, and in this order and in perfect alignment steamed past the forts, the flagship saluting the Brazilian colors, and in turn being saluted by a regular fleet of tugs, launches and excursion boats. There could be no mistaking the cordiality of our welcome. The shores were lined with people and every point of observation along the water front was occupied. The scene was indeed inspiring and the afternoon simply glorious. The great ships moving at half speed to their anchorage, the fleet of accompanying small boats, the city spires looming in front of us, the islands about that seemed to float in the water, the whole bay, green-walled by a zone of mountain peaks and rugged hills, made a scene which will not soon be forgotten by those who had the good fortune to see it. At 3.34 P. M. the ships were tugging at their buoys, and the second stretch in the great cruise was over.



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PERSONNEL AND SHIPS OF THE ATLANTIC FLEET

FIRST SQUADRON—SECOND DIVISION

Battleships *Georgia* (flagship), *New Jersey*, *Rhode Island*, and *Virginia*.

REAR ADMIRAL WILLIAM H. EMORY, Commanding the Division

Lieutenant Robert W. Henderson.....Flag Lieutenant

Lieutenant Charles T. Hutchins, Jr.....Aid

BATTLESHIP *GEORGIA*

Normal displacement	14,948 tons
Full load displacement	16,094 tons
Length over all	441 feet
Beam	76 feet 2 inches
Mean draught	23 feet 9 inches
Bunker capacity	1,925 tons
Speed on trial	19.26 knots
Battery—Four 12-inch, eight 8-inch, twelve 6-inch, twelve 14-pdr., and small guns, four 21-inch submerged torpedo tubes.	

Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.

Captain Henry McCrea.....Commanding Officer
 Lieutenant-Commander George W. Kline.....Executive Officer
 Lieutenant-Commander Stanford E. Moses.....Navigating Officer
 Lieutenant Pope Washington.....Ordnance Officer
 Lieutenant Charles P. Burt.....Senior Engineer Officer
 Lieutenant Emil P. Svarz
 Lieutenant F. W. Osburn, Jr.
 Lieutenant Roscoe C. Davis
 Ensign Huband E. Kimmel
 Ensign Clyde S. McDowell
 Ensign Max M. Frucht
 Ensign Arthur B. Cook
 Midshipman John J. London
 Midshipman Alfred W. Brown, Jr.
 Midshipman Roy L. Lowman
 Midshipman Carter L. Wright
 Midshipman Rufus W. Mathewson
 Midshipman Warren G. Child
 Midshipman Lucien F. Kimball
 Midshipman George M. Ravenscroft

Midshipman Arie A. Corwin
 Midshipman Harry J. Abbott
 Midshipman Emory F. Clement
 Midshipman Newton L. Nichols
 Midshipman Louis C. Scheibla
 Surgeon R. P. Crandall.....Medical Officer
 Passed Ass't Surgeon Joseph P. Traynor.....Ass't Medical Officer
 Paymaster Richard Hutton.....Pay Officer
 Charles M. Charlton.....Chaplain
 Captain of Marines John C. Beaumont
 First Lieutenant of Marines Lovick P. Pinkston
 Boatswain Edwin Murphy
 Chief Gunner John J. Murray
 Gunner O. Borgeson
 Chief Carpenter John P. Yates
 Warrant Machinist Jannis V. Jacobsen
 Warrant Machinist John Burns
 Warrant Machinist Willis Dixon
 G. G. Schweizer.....Paymaster's Clerk



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BATTLESHIP NEW JERSEY

Normal displacement	14,948 tons
Full load displacement	16,094 tons
Length over all	441 feet
Beam	76 feet 2 inches
Mean draught	25 feet 9 inches
Bunker capacity	2,000 tons
Speed on trial	19.180 knots
Battery—Four 12-inch, eight 8-inch, twelve 6-inch, twelve 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.	

Captain William H. II, Southerland.....Commanding Officer
 Lieutenant-Commander Patrick W. Hourigan...Executive Officer
 Lieutenant-Commander Edward H. Durell....Navigating Officer
 Lieutenant-Commander Frank B. Upham.....Ordnance Officer
 Lieutenant Frank C. Martin.....Senior Engineer Officer
 Lieutenant Otto C. Dowling.
 Lieutenant Charles W. Early.
 Lieutenant Merritt S. Corning.
 Lieutenant William J. Moses.
 Ensign Winfield Liggett, Jr.
 Midshipman Joe R. Morrison.
 Midshipman Isaac C. Kidd.
 Midshipman Willis W. Lawrence.
 Midshipman Claude A. Jones.
 Midshipman Jefferson B. Goldman.
 Midshipman William L. Beck.
 Midshipman Miles A. Libbey.

Midshipman Charles C. Gill.
 Midshipman Robert A. Burlord, Jr.
 Midshipman Michael J. Torlinski.
 Midshipman Harold H. Ritter.
 Surgeon Norman J. Blackwood.....Medical Officer
 Assistant Surgeon Matthew H. Ames...Assistant Medical Officer
 Paymaster John R. Sanford.....Pay Officer
 Captain of Marines William H. Parker.
 Second Lieutenant of Marines William F. Bevan.
 Chief Boatswain Percy Herbert.
 Chief Gunner Frank H. Whitney.
 Chief Gunner Wilhelm H. F. Schluter.
 Carpenter William H. Sampson.
 Warrant Machinist John Dexter.
 Warrant Machinist Ellwood W. Andrews.
 Warrant Machinist James H. McDonough.
 Rudolph A. Ashton.....Paymaster's Clerk



THE AMERICAN BATTLESHIP FLEET AT ANCHOR IN

THIS PICTURE WAS TAKEN, LOOKING EASTWARD, FROM THE MORO DO CASTELLO, ON WHICH STANDS THE N.



IN THE HARBOR OF RIO DE JANEIRO, JANUARY, 1908

NATIONAL OBSERVATORY. THE FIVE SMALLER VESSELS NEAREST THE WATER-FRONT ARE BRAZILIAN WARSHIPS



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BATTLESHIP RHODE ISLAND

Normal displacement	14,948 tons
Full load displacement	16,094 tons
Length over all	441 feet
Beam	76 feet 2 inches
Mean draught	23 feet 9 inches
Bunker capacity	2,000 tons
Speed on trial	19.011 knots
Battery—Four 12-inch, eight 8-inch, twelve 6-inch, twelve 14-pdr., and small guns, four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.	

Captain Joseph B. Murdock.....Commanding Officer
 Lieutenant-Commander Joseph W. Oman.....Executive Officer
 Lieutenant-Commander George N. Hayward.....Navigating Officer
 Lieutenant-Commander Provoost Babin.....Ordnance Officer
 Lieutenant William B. Wells.....Senior Engineer Officer
 Lieutenant John T. Bowers
 Lieutenant Carleton R. Kear
 Ensign Bradford Barnette
 Ensign David W. Bagley
 Ensign Walter A. Smead
 Ensign Joseph D. Little
 Midshipman Halford R. Greenlee
 Midshipman John T. G. Stapler
 Midshipman Edward D. Washburn, Jr.
 Midshipman Herndon B. Kelly
 Midshipman Fletcher C. Starr
 Midshipman William H. Lee
 Midshipman Harry Campbell
 Midshipman Carl T. Osburn

Midshipman Roy P. Emrich
 Midshipman Jacob H. Klein, Jr.
 Midshipman Baxter H. Bruce
 Midshipman George T. Swasey, Jr.
 Midshipman Leslie E. Bratton
 Surgeon Eugene P. Stone.....Medical Officer
 Assistant Surgeon Henry L. Dollard.....Assistant Medical Officer
 Paymaster Edward E. Goodhue.....Pay Officer
 John F. Fleming.....Chaplain
 Captain of Marines Louis M. Little
 Second Lieutenant of Marines Hermann T. Vulte
 Boatswain Herbert F. Marker
 Chief Gunner John T. Swift
 Gunner Charles F. Ulrich
 Chief Carpenter Clarence L. Bennett
 Warrant Machinist Murray S. Holloway
 Warrant Machinist Clarence R. Johnson
 Warrant Machinist Charles S. Wolf
 Theodore F. Howe.....Paymaster's Clerk



BATTLESHIP VIRGINIA

Normal displacement	14,948 tons
Full load displacement	16,094 tons
Length over all	441 feet
Beam	76 feet 2 inches
Mean draught	25 feet 9 inches
Bunker capacity	1,900 tons
Speed on trial	19.01 knots
Battery—Four 12-inch, eight 8-inch, twelve 6-inch, twelve 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches: eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches: eight-inch, 6 inches.	

Captain Seaton Schroeder Commanding Officer
 Lieutenant-Commander Benton C. Decker Executive Officer
 Lieutenant-Commander Alfred W. Hinds Navigating Officer
 Lieutenant-Commander William D. MacDougall Ordnance Officer
 Lieutenant-Commander E. L. Bennett Senior Engineer Officer
 Lieutenant Mark St. C. Ellis
 Lieutenant Carlos Bean
 Ensign Henry D. Cooke, Jr.
 Ensign Clarence E. Wood
 Ensign Walter E. Reno
 Ensign Duncan I. Selfridge
 Ensign Horace C. Laird
 Midshipman Stuart W. Cate
 Midshipman William H. Booth
 Midshipman Garret L. Schuyler
 Midshipman Willis W. Bradley, Jr.
 Midshipman Russel S. Crenshaw
 Midshipman William H. Walsh
 Midshipman Emil A. Lichtenstein

Midshipman William T. Smith
 Midshipman George C. Logan
 Midshipman Robert C. Giffen
 Surgeon Charles H. T. Lowndes Medical Officer
 Assistant Surgeon James P. Haynes Assistant Medical Officer
 Paymaster David M. Addison Pay Officer
 Assistant Paymaster Fred E. McMillen Assistant Pay Officer
 George E. T. Stevenson Chaplain
 Captain of Marines Richard P. Williams
 Second Lieutenant of Marines Russel H. Davis
 Boatswain Herman M. Anderson
 Chief Gunner Frank L. Hoagland
 Chief Gunner William A. Cable
 Carpenter Joseph F. Gallalee
 Warrant Machinist Patrick Fernan
 Warrant Machinist Charles C. Holland
 Warrant Machinist William Herzberg
 Walter D. Bollard Paymaster's Clerk

SERVICE ITEMS

INCREASE OF THE NAVY

After a month of hearings the House Committee on Naval Affairs met on February 10 for the purpose of voting upon the program for the increase of the Navy, and authorizing the reporting of the Naval Appropriation Bill to the House of Representatives by Representative Foss, Chairman of the Committee. The Naval Bill agreed upon carries, in round numbers, items aggregating over \$102,000,000,—a very material reduction from the estimates submitted by Secretary Metcalf through the Treasury Department.

Sentiment in the House Committee strongly favored the adoption of the entire "four-battleship program" of the Administration, but intimations had come from Chairman Tawney of the powerful House Committee on Appropriations that the plea of economy would be urged against that project on account of the condition of the Treasury. The Naval Committee, therefore, decided to cut the battleship program in two, and to eliminate entirely the recommendations for scouts, colliers, ammunition vessels, mine-laying craft and repair ships.

The naval increase recommended by the House Naval Committee for consideration by the House is as follows:

Two battleships of the same type as the <i>Delaware</i> class.....	\$19,000,000
Ten torpedo boat destroyers.....	8,500,000
Eight submarine torpedo boats.....	3,040,000

Total for increase of the Navy.....\$30,540,000

The total amount thus recommended for the increase of the Navy is not even half as large as the appropriation which the General Board, the Board on Construction, Secretary of the Navy Metcalf, and President Roosevelt urged upon the attention of Congress. The naval increase which the Administration recommended was as follows:

Four battleships of the <i>Delaware</i> type.....	\$38,000,000
Four scout cruisers of the <i>Chester</i> class.....	10,000,000
Ten destroyers.....	8,500,000
Four submarines.....	1,520,000
One ammunition ship.....	1,750,000
One repair ship.....	2,000,000
Two mine-laying ships (conversion of existing ships).....	500,000
Four fleet colliers.....	7,000,000
Total	\$69,270,000

The total amount recommended by the House Committee is approximately \$8,000,000 less than the Administration asked for the four battleships alone, to say nothing of the rest of the program recommended by Secretary Metcalf and the President.

HOW THE COMMITTEE VOTED

Various propositions were voted upon before the final action of the Committee was taken. The different items in the naval program were voted upon separately, and the recommendation for four battleships was first voted down before the committee took up the compromise proposal for two battleships. The vote in favor of the building of two battleships was 13 to 5. The five Representatives who voted in accordance with the President's recommendations were: Lilley of Connecticut (Republican), Thomas of Ohio (Republican), Meyer of Louisiana (Democrat), Talbott of Maryland (Democrat) and Hobson of Alabama (Democrat). Chairman Foss declared after the meeting that the preference of the committee was for four battleships; but that the voting attitude of the committee was that experience had shown that it was better in the end to recommend in the beginning a program likely to be approved by the House.

MINORITY REPORT BY REPRESENTATIVE HOBSON

Representative Hobson announced that he would file a minority report setting forth the reasons which impel the five minority members of the committee to insist upon the adoption of the Administration program. Hobson will lead the fight that is to be made upon the floor of the House of Representatives in favor of the four-battleship program when the Naval Bill comes up for discussion and consideration. It is understood that the members of the House Committee who voted to cut down the recommendations to two battleships will not offer opposition to the fight which Representative Hobson intends making before the House. If he and others can secure enough votes to increase the authorization to four battleships the other members of the House Committee will be very much pleased.

THE WEAKNESS OF AMERICA

Discussing the reasons which render it necessary to authorize a large naval increase, Representative Hobson said:

"The events of the last few years have doubled the exposure of America. Formerly our navy was maintained on the basis of protecting the Atlantic. Now we have to protect our possessions in the Pacific, and our Atlantic as well as our Pacific seaboard. We have but one fleet with which to do this. It would be folly to divide the fleet as now constituted. Consequently we are defenseless in the Atlantic, today, just as we were defenseless in the Pacific last year. A nation of Europe is liable to be allied with a nation of Asia. Therefore, our navy ought logically to be doubled.

"A revolution in naval architecture followed the Russo-Japanese war. All the other great nations have been rushing the construction of a new type of warship conservatively estimated as equivalent in power to at least three of the type now constituting our fleet. Ships of this class are now being built as follows:

For America 2:

For Japan 11:

For England 12:

For France 12:

For Germany 13:

"The two that are being built for America will not be in use before 1910. Those being built for the other countries are on contracts for much quicker construction than ours.

WHAT JAPAN IS DOING

"Though we now have a margin of superiority in the Pacific over Japan, this margin will disappear as Japan's new big ships are added to her present fleet. This being the situation, the President and the Navy Department have urged upon the House Committee on Naval Affairs the providing of four new battleships of the highest class. Five members of the Committee voted to recommend to the House the four battleships asked for by the Administration. The majority of the Committee voted to cut the recommendation down to two battleships. No reason was given for this motion, except the personal opinion that the House would not approve a report calling for more than two battleships.

"I believe the House will consider this question as carefully as its importance demands, and that, after such consideration, it will vote for the four ships asked for by the President. The House would certainly vote billions if the country should become involved in war. It takes several years to build a first-class battleship. A crisis has to be met with the ships already on hand. It is simple logic, therefore, that we must prepare for the future. Possession of an unquestionably superior force is a power-

ful influence for peace, when the evil-disposed are planning war. We need the full benefit of such peace-preserving influences, and the guarantee of victory this force would give in a war that a just policy cannot prevent.

"An ounce of prevention is still worth a pound of cure—tons of cure where war is concerned.

"Failure in time of peace to make adequate provision for war is certainly not economy. It is million wise and billion foolish.

"Under the circumstances I feel it my duty to carry the question to the floor of the House, where I will contend for the naval appropriation as requested by the Administration."

EIGHT SUBMARINES INSTEAD OF FOUR

Perhaps the most significant feature of the action of the House Committee was the inclusion in the naval increase program of eight submarines, instead of the four asked for by the Navy Department, including both the General Board and the Board on Construction. This is the number which both President Roosevelt and Secretary Metcalf urged upon the attention of Congress. In his annual report Secretary Metcalf said: "As compared with other naval powers, we are deficient in destroyers and submarines, and are also woefully lacking in colliers." He, however, urged the four battleships as more important.

Strong sentiment developed in the committee in favor of submarines, so much so that, while the battleship recommendation of the Administration was cut in two, the destroyers allowed, all of the other types of vessels thrown out absolutely, the committee authorized twice the number of submarines embraced in the estimates. These boats, by the adoption of an amendment offered in the Committee by Representative Loudenslager of New Jersey, are to be of the *Octopus* type, unless the Lake Submarine Boat Company can demonstrate by October 1 next that they can produce a boat equal to the *Holland* type of submarine. This amendment was adopted by a vote of 10 to 7, after rather a hard fight and very plain talk by several members of the committee in opposition to the limitation.

PACIFIC COAST WANTS SUBMARINES

The doubling of the Department's estimate for submarines was largely due to letters and petitions received by the Committee from Pacific coast chambers of commerce. A number of submarine boat bills were also introduced. Representative Julius Kahn of California has introduced a bill "for the rapid defense of the Pacific

Coast Ports," providing for the construction, on the Pacific coast, of fifteen submarine torpedo boats of the most improved type, at a cost not exceeding \$5,000,000, of which \$1,000,000 should be immediately available, these submarines "when completed to be stationed at Pacific coast ports." On January 13 last, Representative Jones, of the State of Washington, introduced a bill calling for an appropriation of \$4,000,000 for the construction of five "subsurface or submarine torpedo boats of the most modern type and greatest efficiency," to be stationed in the waters of Puget Sound, Washington, for the national defense. On January 27 last Representative Littlefield of Maine introduced a bill providing for the appropriation of \$1,000,000 for the construction of two "large, sea-going subsurface torpedo boats of the type represented in the tests and proposals made under the naval appropriation acts of 1906 and 1907, having a speed of not less than 22 knots; and four, small, subsurface torpedo boats having a speed of not less than 16 knots." On February 6 Senator Penrose of Pennsylvania introduced a bill to give the Secretary of the Navy authority to contract with Richard B. Painton for a specially designed cruiser and torpedo-boat destroyer to be built and constructed with Painton's electrical system of multiple screw propellers and electrical rudder steering-gear apparatus, this motive power to be a combination of electric and steam turbine dynamo and electric motor power; the sum of \$500,000 to be appropriated for the destroyer, and \$2,000,000 for the cruiser, which should be constructed to make 40 knots or more.

"COASTAL" SUBMARINES OPPOSED

On January 13 the Senate passed a resolution directing Secretary Metcalf to report to the Senate as to the cost of two submarine torpedo boats to be stationed on Puget Sound, and one submarine torpedo boat to be stationed at Gray's Harbor, Washington; and "whether in his opinion such submarine torpedo boats are necessary for the proper protection of the waters named."

In his response, which was transmitted to the Senate in the latter part of January, Secretary Metcalf says that the Board on Construction, which was called upon for a prompt report as to the cost of the proposed submarine torpedo boats, had replied:

"The contract price of submarine torpedo boats recently contracted for by the Department is as follows:

"For each of three submarine torpedo boats of about 340 tons displacement — \$360,000.

"For each of four submarine torpedo boats of about 270 tons displacement — \$285,000.

"These boats are being constructed at Quincy, Mass., and the contract provides that they shall be delivered 'on the Atlantic coast of the United States at such port as may be designated by the Secretary of the Navy.'

"Since the construction of submarine vessels is a more or less specialized industry, involving the use of patented rights and the supervision of experts having authority to employ those patent rights, the construction of such vessels on the Pacific coast of the United States would involve a substantial increase in cost over that due to such differences in cost of labor and material as may be incident to local conditions on that coast.

"The board is therefore of the opinion that the construction of 'two submarine torpedo boats to be stationed on Puget Sound and one submarine torpedo boat to be stationed at Gray's Harbor, State of Washington,' could be most expeditiously effected by having these boats built or assembled at some port on Puget Sound.

"For the reasons above stated, the board is of the opinion that in estimating the cost of construction on the Pacific coast of the United States of three submarine torpedo boats, equal in all respects to the best boat now under contract for the United States Navy, an estimate of \$378,000 for each boat should be submitted to Congress to cover the cost of construction of said boats."

THE DEFENSE OF THE PACIFIC

Responding to the inquiry contained in the second clause of the resolution as to whether in his opinion the torpedo boats suggested "are necessary for the proper protection of the waters named" Secretary Metcalf said:

"This question is one that cannot without difficulty be answered in general terms. Assuming the possibility of war, it would be a gross violation of the first principles of strategy for any nation to send a strong naval expedition to operate at a great distance from its sources of supply and repair until the main battle fleet of the United States had been reduced; and since our battle fleet is superior to that of any probable enemy on the Pacific, the theater of war might not be expected to reach the coast for an indefinite time. In case of war the only operations which would probably affect the coast would be in the nature of raids by small forces which would doubtless have an important bearing on the outcome of the war.

"The resolution specifies torpedo boats 'to be stationed on Puget Sound' and 'at Gray's Harbor, State of Washington.' It is most inadvisable that any appropriations be made by the Congress for naval vessels to be constructed for exclusive employment in any specified local-

ity, as herein proposed. All naval vessels should be available for service at large, and the power of directing the place and manner of employment should not be restricted. A policy of local restriction would result in a serious weakening of the nation's power of offense and defense, and it is most earnestly advised that such policy be not adopted.

"In my report for the present year recommendation is made for the construction of four new submarines. This recommendation was made in consideration of the policy of keeping naval expenditures within the lowest reasonable limits necessary to meet the urgent needs of the service. Whether this number should be increased is a matter within the discretion of the Congress."

THE NORTH DAKOTA STILL AHEAD

Competition is keen between the shipbuilding companies which are building the new 20,000-ton battleships of the *Delaware* type, and the contest is being watched with interest by those who contend that there is no reason why American warships should not be built as speedily as those in British and Japanese dockyards. Reports on the work accomplished during January have been received at the Navy Department, and show that the Fore River Shipbuilding Company, at Quincy, Massachusetts, is gaining in its construction of the *North Dakota* over the Newport News Shipbuilding and Dry Dock Company, of Newport News, Virginia, which has the contract for the sister ship *Delaware*. Contracts for the two ships were let on August 6 last, the *North Dakota* to have Curtis turbines, and the *Delaware* reciprocating engines. The keel of the *North Dakota* was laid December 16 last, while the keel of the *Delaware* did not go down until two weeks later. The *North Dakota* had a good lead over her rival, and has continued to gain. The percentage of completion of each vessel according to the latest and all previous progress reports affords the following interesting comparison:

	North Dakota.	Delaware.	Per Cent of North Dakota Ahead.
September 1, 1907...	0.00	0.00	0.00
October 1, 1907.....	00.00	00.65	0.00
November 1, 1907...	4.23	2.33	1.90
December 1, 1907...	7.84	5.68	2.76
January 1, 1908....	12.70	7.05	3.65
February 1, 1908....	17.50	9.20	8.50

These figures are based on the Department's official progress reports, and show that the percentage of lead which the *North Dakota* had over the *Delaware* on February 1 was nearly equal to the total percentage of completion of the latter vessel.

THE MISSISSIPPI ACCEPTED

The new battleship *Mississippi*, just completed by the Cramp's of Philadelphia left the middle of February for a month's shakedown trip to Guantanamo. She was delivered to the government at the League Island navy yard on January 22, when Captain John C. Fremont, who was lately relieved by Commander F. L. Chapin as naval attaché at Paris and St. Petersburg, took command of the vessel.

TRIAL OF THE IDAHO

The battleship *Idaho*, a sister ship of the *Mississippi* which is being completed by the Cramp's, will soon be ready for acceptance. The vessels are of 13,000 tons displacement and carry a main battery of 20 heavy guns each. The *Idaho*, on her trial trip off the Delaware Capes in December, made a mean speed of 17.25 knots, and a maximum of 18.4 knots. The contract calls for 17 knots. Six 3-pounder guns and mounts have just been shipped from the Washington navy yard to League Island for the *Idaho*.

SOUTH DAKOTA AND CALIFORNIA TRIALS.

The armored cruiser *California* had her final acceptance trial January 20. Concerning the result the Department issued the following announcement the next day: "The *California* completed her final acceptance trial yesterday, maintaining a speed of 22 knots." Twenty-two knots is the speed contracted for by the government. The *California* was built at the Union Iron Works, San Francisco, but was delivered to the Mare Island navy yard for completion, on account of labor troubles. Her sister ship, the *South Dakota*, which was delivered to the government at the Mare Island navy yard on October 2, 1907, will have her first government trial trip in May over the Santa Barbara measured mile course.

TRIALS OF THE THREE SCOUT CRUISERS

Plans have been practically completed for the trials of the three new scout cruisers—the *Salem*, *Birmingham* and *Chester*—the two former of which were built at Fore River and the latter at the Bath Iron Works. The *Chester* left Bath the middle of February for Rockland for the builders' preliminary trial. She will be commanded by Commander Henry Braid Wilson, who will conduct her trials over the Cape Ann course on February 27. The Navy Department has been informed that the *Birmingham* will be ready for trial on March 2. The date for the trial of the *Salem* has not been set. Much interest attaches to the trials of these three vessels because they are each equipped with propelling engines of different type.

The *Birmingham* has reciprocating engines; the *Chester* is equipped with Parsons turbines and the *Salem* has Curtis turbines. All three of these vessels were authorized by the act of Congress of April 17, 1904, and their contract speed is to be 24 knots. The three ships are of similar design, and have similar boiler outfits, each rated at 16,000 horse-power.

THE FLORIDA TO BE BOMBARDED

The proposed firing attack upon the monitor *Florida* promises important results, and has very properly aroused great interest among naval officers. It is certainly a step in the right direction of endeavoring to get by practice certain scientific data not obtainable by theory, and is in general harmony with the motives which inspired the British Admiralty to order the recent bombardment of the fairly modern battleship *Hero* as described in THE NAVY for January. In the *Florida* tests, it is understood, there will be fired against the ship, under the auspices of the Bureau of Ordnance, a shot from a twelve-inch gun, and one of the latest type of improved Whitehead torpedoes. The object is to obtain the effect of gun-fire at ranges and velocities which would exist in actual combat under recent ordnance developments. The attack upon the *Florida* will not be as extensive as that which was recently conducted against the *Hero*, but some important questions of resistance and vulnerability are expected to be determined in the tests which will take place at the naval proving grounds at Indian Head, Maryland, a short distance south of Washington. It is understood that the 12-inch rifle shot will be fired with the velocity and trajectory of a shot at 6,000 yards range, and that the torpedo range will be 3,000 yards. Details concerning the experiment are being kept as confidential as possible.

DEFINITE PROJECT FOR NAVAL INCREASE

President Roosevelt has taken a deep interest in the proposal of Representative Hobson for a regular plan of naval construction. Their first conference on this subject occurred during Representative Hobson's visit to the White House on January 15. Upon leaving the White House on that occasion Mr. Hobson declared he would have the President's support in behalf of a bill providing for a continuing program like that of Germany, instead of the present sporadic method of providing one battleship one year, none the next and two the following year.

On the same day Mr. Hobson, upon his arrival at the Capitol from the White House, introduced a bill to provide for "a navy adequate for national defense." The measure calls for an appropriation of \$50,000,000 annually for constructing new battleships, the number and

features of these vessels to be determined by the President, under expert advice. The bill also provides authorization for the President, "whenever in his judgment the national security and defense require it, to order or purchase, at home or abroad, vessels or other war material, the total cost of which shall not exceed \$50,000,000 in any one year, without further authorization." If the Hobson plan were adopted the Government would have funds enough for the beginning of five battleships of the improved *Dreadnought* type each year, or four of the 25,000-ton design, together with an armored cruiser.

Mr. Hobson says it is time the American Navy was removed from "all danger of the parsimony of economical Congresses, as well as from the extravagance of over-liberal sessions." He believes there should be a definite sum devoted annually to the building of battleships and smaller craft, and that it is not right that the work of up-building the navy should be "crippled every time a wave of reform or retrenchment happens to strike the capital." The President assured Representative Hobson of hearty support of the principal of the Hobson Bill, and he will impress its necessity upon the various members of the two naval committees of Congress.

NEW GENERAL BOARD MEMBERS

Captain Sidney A. Stanton and Commander Frank Friday Fletcher have been chosen to fill two of the vacancies in the General Board of the Navy of which Admiral Dewey is President.

Captain Stanton has been chosen for the place vacated by the transfer of Captain William J. Barnette from the General Board to be Superintendent of the Naval Observatory. Commander Fletcher will succeed the late Captain Nathan Sargent. There is a third vacancy on the Board caused by the appointment of Captain John E. Pillsbury to Rear Admiral Brownson's former position as Chief of the Bureau of Navigation.

Captain Pillsbury will, however, continue to serve on the General Board, as Chiefs of the Bureau of Navigation are, ex officio, members of that important naval advisory body, succeeding to Rear Admiral Brownson's place on the board. The General Board, which was established by Department General Order No. 544 of March 13, 1900, is in reality the "board of strategy" of the Navy, and under the President's executive order it consists of the Admiral of the Navy, the Chief of the Bureau of Navigation, the Chief Intelligence Officer, the President of the War College and such additional officers above the grade of commander as may be necessary to maintain the total membership of seven.

As rearranged by the selection of Captain Staunton and Commander Fletcher, the Board is short only one member, and consists of the following members:

George Dewey, Admiral of the Navy.

Rear Admiral John E. Pillsbury, Chief of the Bureau of Navigation.

Rear Admiral John P. Merrell, President of the War College at Newport.

Captain Raymond P. Rodgers, Chief Intelligence Officer.

Captain Sidney A. Staunton.

Captain (now Commander) Frank Friday Fletcher.

The General Board is the most important general advisory body in the Navy Department. It devises plans for the effective preparation and maintenance of the fleet for war, advises the Secretary of the Navy as to the disposition and distribution of the fleet, prepares plans of campaign, including co-operation with the Army, and the employment of all the elements of naval defense, considers the number and types of ships proper to constitute the fleet, the number and rank of officers, the location and general arrangement of coaling and naval stations, and co-ordinates the work of the Naval War College at Newport, the Office of Naval Intelligence and the Board of Inspection and Survey, in addition to reporting upon naval operations, maneuvers, tactics, organization, training and such other subjects as the Secretary of the Navy may lay before it.

Captain Staunton has been in command of the armored cruiser *Colorado* during target practice at Magdalena Bay. He was placed in command of the *Colorado* in 1906, and is ready for shore duty. Late last fall he brought his vessel back from the Philippines, as a unit of Admiral Dayton's Pacific Squadron. Commander Fletcher, who is to fill another vacancy on the General Board, returned to this country about the same time in command of the cruiser *Raleigh*, which has been on the Asiatic Station, but is now out of commission at Mare Island.

Both of the new members of the General Board are familiar with the situation in the Far East. Their cruisers also stopped at Japanese ports en route from the Orient. Captain Staunton is one of the best officers in the service. He was very close to the late Rear Admiral Sampson, serving on the battleship *New York* at Santiago. It is understood in well-informed naval circles he was the real author of the famous Sampson dispatch of July 3, 1898, announcing that "The fleet under my command offers the nation as a Fourth of July present the whole of Cervera's fleet." This dispatch was signed by Sampson,

but is understood to have been written by Captain Staunton.

Captain Staunton is a native of West Virginia. He entered the Naval Academy in 1867 and spent the first three years after his graduation in 1871 upon the old *Congress*, *Wabash* and *Plymouth*, coming to the Hydrographic Office in 1874. He was on duty at the Naval Academy from 1877 to 1879, and in 1883 was on special ordnance duty. In October of that year he was attached to the Naval Intelligence Office, remaining there until 1885, when he became flag lieutenant of the old *Pensacola* on the European Station. From 1887 until 1889 he was again connected with Naval Intelligence, and went, the latter year, as Secretary, to the International Maritime Conference, helping prepare the program which that gathering considered. From 1889 until 1893 he was flag lieutenant on the *Chicago*, of the "White Squadron" of Evolution which visited Europe and the South Atlantic. In the latter year he was assigned to ordnance inspection at the Washington Navy Yard. From 1894 until 1897 he was Recorder of the Board of Inspection and Survey, and in June, 1897, he was ordered to the battleship *Iowa*, where he remained until April, 1898, when he was transferred to the *New York*, to which Admiral Sampson transferred his command from the *Iowa*. After the war Captain Staunton was placed on duty with the Isthmian Canal Commission, and in 1891 he took command of the *Yankee*. His next important command was the *Colorado*.

Commander Fletcher is a well-known ordnance expert. He entered the Naval Academy from Iowa in 1870, and, after graduation, went, in 1875, for a year of deep-sea soundings in the Pacific on the old *Tuscarora*, from which he was transferred to the *Lackawanna* in 1877. In 1878 he accompanied the famous old *Constitution* with the special service squadron to the Paris Exposition, and was then attached to the *Ticonderoga* in Admiral Schufeldt's special service squadron. In 1882 he was ordered to the Hydrographic Office, and in the following year accompanied the expedition to Central and South America for the telegraphic determination of longitudes. From 1887 until 1892 he spent five of the best years of his service on duty here with the Bureau of Ordnance, and in the latter year was ordered to the torpedo boat *Cushing*, then the little wonder of the Navy. In September, 1895, he was ordered to the old *Maine*. Before her destruction he was, in 1896, transferred for two years to the torpedo station for ordnance work, and in 1898 he returned to the Bureau of Ordnance for other special duty. He took command of the *Eagle* toward the close of the Spanish war. His next important command was the cruiser *Raleigh*.

WARSHIP REPAIRS EXCEEDING LEGAL LIMITATIONS UPON COST

The Naval Appropriation Act of March 2, 1907, placed a limitation upon expenditures for repairs to naval vessels by providing that the Bureaus should use no portion of the appropriation made last spring for the construction and repair of vessels for the repair of any ship when the estimated cost of the repairs, to be appraised by a competent board of naval officers, exceeds "20 per centum of the estimated cost, appraised in like manner, of a new ship of the same size and like material." This limitation upon repairs also requires the Secretary of the Navy to report at the beginning of each regular session of Congress the vessels upon which repairs or changes are proposed which, in any case, shall amount to more than \$200,000, the extent of the proposed repairs and changes, and the amounts estimated to be needed in each case, the purpose being to allow expenditures for such repairs to be made only after appropriations have been made for them by Congress in detail.

Obedying this law, Acting Secretary of the Navy Newberry sent to Speaker Cannon, on February 12, a formidable list of vessels which will probably require general overhauling to the extent of \$200,000 or more during the fiscal year ending June 30, 1909. These ships include the *Brooklyn*, *San Francisco*, *Baltimore*, *Alabama*, *Illinois*, *Iowa*, *Kearsarge* and *Kentucky*. The vessels requiring, during the same period, repairs which, in the aggregate under all Bureaus, will probably exceed 20 per cent of the total value of each of the ships, and should therefore be authorized by Congress, are the *Adder*, *Bennington*, *Grampus*, *Moccasin*, *Pike*, *Paul Jones*, *Nicholson*, *O'Brien*, *Narkeeta* and *Holland*.

Acting Secretary Newberry has requested the incorporation in the Naval Appropriation Act for the fiscal year ending June 30, 1909, of a provision authorizing expenditures, exceeding \$200,000, or exceeding 20 per cent of the estimated cost of new ships of the same size, for repairs and changes to vessels on which the Bureaus of Construction, Equipment, Ordnance and Steam Engineering have reported in accordance with the provision placed in last year's law. The statement submitted by Acting Secretary Newberry was accompanied

by letters and indorsements from the chiefs of the four bureaus having charge of the repairs, setting forth detailed estimates of the repairs and changes aggregating \$5,607,300 for repairs and changes proposed for 18 vessels. These estimates are as follows:

CRUISER BROOKLYN

<i>Under Construction and Repair</i> —General overhauling; rearrangement of magazines and ammunition hoists in connection with fitting of new intermediate battery; fitting fire-control system; modernization of turrets in accordance with present requirements. Estimated cost.....		\$275,000
<i>Under Ordnance</i> —Fire-control system, \$16,000; change to 2-stage ammunition hoist (four turrets), \$36,000; new devices for training gun pointers, \$1,500. Total.....		53,500
<i>Under Equipment</i> —Repairs, alterations, and changes to make the vessel efficient as armored cruiser, including electrical, canvas, and galley work.....		75,000
<i>Under Steam Engineering</i> —General overhauling of machinery and repairs to same...		50,000
Aggregate		\$453,500

CRUISER SAN FRANCISCO

<i>Under Construction and Repair</i> —General overhauling; necessary work for converting into a ship for laying mines; work in connection with installation of new boilers; miscellaneous improvements.....		\$200,000
<i>Under Ordnance</i> —For modernizing battery, \$35,250; for mine outfit, \$115,000. Total...		150,250
<i>Under Equipment</i> —Refitting and equipping as mine-laying vessel, including general overhauling of equipment installation, and changes necessary to make the vessel efficient		50,000
<i>Under Steam Engineering</i> —General overhauling of machinery, installation of new boilers, and general repairs.....		200,000
Aggregate		\$600,250

CRUISER BALTIMORE

<i>Under Construction and Repair</i> —General overhauling; necessary work for converting into a ship for laying mines; work in connection with installation of new boilers; miscellaneous improvements of moderate cost. Estimated cost.....	\$200,000
<i>Under Ordnance</i> —For modernizing battery, \$3,300; for mine outfit, \$200,000. Total....	203,300
<i>Under Equipment</i> —Refitting and equipping as mine-laying vessel, including general overhauling of equipment installation, and changes necessary to make the vessel efficient	50,000
<i>Under Steam Engineering</i> —General overhauling of machinery, installation of new boilers, general repairs.....	200,000
Aggregate	\$653,300

BATTLESHIP ALABAMA

<i>Under Construction and Repair</i> —General overhauling; work in connection with changes in battery and magazines to bring them into accord with present practice; installation of ammunition hoists and other turret fittings in accordance with present requirements; miscellaneous alterations and improvements. This vessel was originally commissioned October 16, 1900, and has been continuously in commission since without general overhauling. The vessel is now provided with a modern fire-control system. Estimated cost.....	\$350,000
<i>Under Ordnance</i> —To replace 6-pounders by six 3-inch guns and mounts, \$33,000; new devices for training gun pointers, \$1,500; new range finders, fire-control system, \$4,000; change to 2-stage ammunition hoist (2 turrets), \$24,000. Total.....	62,500
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a battleship, including electrical, canvas and galley work.....	80,000
<i>Under Steam Engineering</i> —General overhauling of machinery and installation of new boilers	175,000
Aggregate	\$667,500

BATTLESHIP ILLINOIS

Under Construction and Repair—General overhauling; work in connection with

changes in battery and magazines to bring them in accord with present practice; installing ammunition hoists and other turret fittings in accordance with present requirements; miscellaneous alterations and improvements. This vessel was originally commissioned September 16, 1901, and has been continuously in commission since without general overhauling. The vessel is now provided with a modern fire-control system. Estimated cost.....	\$350,000
<i>Under Ordnance</i> —To replace 6-pounders by six 3-inch guns and mounts, \$33,000; new devices for training gun pointers, \$1,500; new range finders, fire-control system, \$4,000; change to 2-stage ammunition hoist (2 turrets), \$24,000. Total.....	62,500
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a battleship, including electrical, canvas and galley work.....	80,000
<i>Under Steam Engineering</i> —General overhauling of machinery and installation of new boilers.....	175,000
Aggregate	\$667,500

BATTLESHIP IOWA

<i>Under Construction and Repair</i> —General overhauling; work in connection with changes in battery and magazines to bring them into accord with present practice; installing a modern system for fire control, also ammunition hoists and other turret fittings in accordance with present requirements; miscellaneous alterations and improvements. This vessel was originally commissioned June 16, 1897, and was given a general overhauling in 1903, being recommissioned December 23, 1903, since which time she has had no general overhauling. Estimated cost.....	\$350,000
<i>Under Ordnance</i> —Change to 2-stage ammunition hoist (6 turrets), \$56,000; new fire-control system, \$20,000; new devices for training gun pointers, \$1,500. Total.....	77,500
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a battleship, including electrical, canvas and galley work.....	80,000
<i>Under Steam Engineering</i> —General overhauling and repairs to machinery.....	50,000
Aggregate	\$557,500

BATTLESHIP KEARSARGE

<i>Under Construction and Repair</i> —General overhauling; work in connection with changes in battery and magazines to bring them into accord with present practice; installing ammunition hoists and other turret fittings in accordance with present requirements; miscellaneous alterations and improvements. This vessel was originally commissioned February 20, 1900, and has been continuously in commission since without any general overhauling. The vessel is now provided with a modern fire-control system. Estimated cost.....		\$350,000
<i>Under Ordnance</i> —Change to 2-stage ammunition hoist (2 turrets), \$30,000; new range finders, \$4,000; new devices for training gun pointers, \$1,500; six new 3-inch guns, \$33,000. Total.....		(68,500)
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a battleship, including electrical, canvas and galley work.....		80,000
<i>Under Steam Engineering</i> —General overhauling of machinery and installation of new boilers		175,000
Aggregate		\$673,500

BATTLESHIP KENTUCKY

<i>Under Construction and Repair</i> —General overhauling; work in connection with changes in battery and magazines to bring them into accord with present practice; installing ammunition hoists and other turret fittings in accordance with present requirements; miscellaneous alterations and improvements. This vessel was originally commissioned May 15, 1900, and has been continuously in commission since. In 1904 she was given a general overhauling at very moderate expenditure, since which time she has had no general overhauling. The vessel is now provided with a modern fire-control system. Estimated cost.....		\$350,000
<i>Under Ordnance</i> —Change to 2-stage ammunition hoist (2 turrets), \$30,000; new range finders, \$4,000; new devices for training gun pointers, \$1,500; six new 3-inch guns, \$33,000. Total.....		(68,500)
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a battleship, including electrical, canvas and galley work.....		80,000
<i>Under Steam Engineering</i> —General overhauling of machinery and installation of new boilers		175,000
Aggregate		\$673,500

SUBMARINE ADDER

<i>Under Construction and Repair</i> —General overhauling; installing adjusting and torpedo operating devices, renewing piping, stiffening tanks, new periscopes, new storage batteries. Work on this vessel was authorized by Department's indorsement of October 15, 1906, practically none performed. Estimated cost.....		24,500
<i>Under Equipment</i> —Repairs, alterations and changes, including removal of storage batteries, overhauling electrical equipment and minor work.....		20,500
<i>Under Steam Engineering</i> —Repairs and alterations to machinery and improvements...		1,500
Aggregate		\$46,500

GUNBOAT BENNINGTON

<i>Under Construction and Repair</i> —General overhauling and minor improvements. Work on this vessel was authorized by the Department's indorsement of May 15, 1906, but practically no work has been performed. Estimated cost.....		\$75,000
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make vessel efficient as a gunboat, including electrical, canvas and galley work.....		20,750
<i>Under Steam Engineering</i> —General overhauling and repair to machinery, building and installation of new boilers.....		100,000
Aggregate		\$195,750

SUBMARINE GRAMPUS

<i>Under Construction and Repair</i> —General overhauling, installing latest type of adjusting and torpedo operating device, renewing piping, stiffening tanks to insure safety of vessel at great depths, installing new type of periscopes; work in connection with installation of new storage batteries. Work on this vessel was authorized by the Department's indorsement of October 15, 1906, and necessary material has been bought, but practically no work has been performed. Estimated cost.....		\$33,500
<i>Under Equipment</i> —Repairs, alterations and changes, including renewal of storage batteries, overhauling of electrical equipment...		22,500
<i>Under Steam Engineering</i> —Repairs and alterations to machinery and improvements...		1,500
Aggregate		\$57,500

SUBMARINE MOCCASIN

<i>Under Construction and Repair</i> —General overhauling, installing latest type of adjusting and torpedo operating device, renewing piping, stiffening tanks to insure safety of vessel at great depths, installing new type of periscopes; work in connection with installation of new storage batteries. Work on this vessel was authorized by the Department's indorsement of October 15, 1906, and the necessary material has been purchased, but practically no work has been performed. Estimated cost.....		\$24,500
<i>Under Equipment</i> —Repairs, alterations and changes, including renewal of storage batteries and overhauling of electrical equipment.....		20,500
<i>Under Steam Engineering</i> —Necessary repairs and alterations to machinery and improvements.....		1,500
Aggregate		\$46,500

SUBMARINE PIKE

<i>Under Construction and Repair</i> —General overhauling, installing latest type of adjusting and torpedo operating devices, renewing piping, stiffening tanks to insure safety of vessel at great depths, installing new type of periscopes; work in connection with installation of new storage batteries. Work on this vessel was authorized by the Department's indorsement of October 15, 1906, and the necessary material has been purchased, but practically no work has been performed. Estimated cost.....		33,500
<i>Under Equipment</i> —Repairs, alterations and changes necessary to make the vessel efficient as a submarine, including renewal of storage batteries and overhauling electrical equipment.....		22,500
<i>Under Steam Engineering</i> —Repairs and alterations to machinery and improvements.....		1,500
Aggregate		\$57,500

TORPEDO-BOAT DESTROYER PAUL JONES

<i>Under Construction and Repair</i> —General overhauling, minor improvements. Estimated cost.....		\$25,000
<i>Under Ordnance</i> —Changes authorized, money available, and material ordered in part.		
<i>Under Equipment</i> —Repairs, alterations and		

changes, including electrical, canvas and galley work.....	7,000
<i>Under Steam Engineering</i> —General overhauling of machinery and retubing of all boilers.....	44,000
Aggregate	\$76,000

TORPEDO BOAT NICHOLSON

<i>Under Construction and Repair</i> —General overhauling, work in connection with installation of new boilers; work to bring vessel up to date as far as practicable.....		\$25,000
<i>Under Steam Engineering</i> —General overhauling of machinery and new boilers.....		30,000
Aggregate		\$55,000

TORPEDO BOAT O'BRIEN

<i>Under Construction and Repair</i> —General overhauling, work in connection with installation of new boilers; work to bring vessel up to date as far as practicable.....		\$25,000
<i>Under Steam Engineering</i> —General overhauling of machinery and new boilers.....		30,000
Aggregate		\$55,000

TUG NARKEETA

<i>Under Construction and Repair</i> —General overhauling, work in connection with installation of new boilers.....		\$24,000
<i>Under Steam Engineering</i> —Requires general overhauling of machinery, building and installing new boiler.....		15,000
Aggregate		\$39,000

SUBMARINE HOLLAND

General overhauling; installing latest types of tanks, piping, and other safety devices, so far as practicable; removal of aerial guns; installing latest type periscope; installing new batteries; miscellaneous repairs. Estimated cost—		
Under Bureau of Construction and Repair..	\$11,600	
Under Bureau of Steam Engineering.....	65	
Under Bureau of Equipment.....	20,200	
Under Bureau of Ordnance.....	135	
Aggregate	\$32,000	

FOREIGN NAVIES

GREAT BRITAIN

QUADRUPLE-SCREW DESTROYER LAUNCHED

The largest destroyer laid down by any Admiralty — the 1,800-ton *Swift* — was successfully launched December 7 last at the yard of Messrs. Cammell, Laird, and Co., Ltd., at Birkenhead, England. In size and cost she stands alone among the torpedo-boat destroyers of the world, and is in reality an ocean-going destroyer-scout designed for a speed of 36 knots an hour, as against 33 knots for the Tribal class of sea-going destroyers already completed by the British Government. The principal dimensions of the *Swift* are:

Length between perpendiculars.....	345 feet
Beam	34 feet
Depth.....	20 feet 4 inches
Displacement, mean load draught.....	1,800 tons
Armament —	
2 4-inch breech-loaders in forecask.	
2 4-inch breech-loaders in upper deck.	
2 18-inch torpedo tubes on upper deck.	

The *Swift* is larger than either the *Yorktown*, *Wilmington*, or *Nashville*, of the American Navy, and is to have a nominal speed twice as great as any of these gunboats. Whereas the *Swift* is to have a speed of 36 knots, the *Yorktown*, built twenty years ago, showed only 16.14 knots on trial; and the *Wilmington* class of thirteen years ago averaged from 15.08 to 16.30 knots on trial. The building of the *Swift* is, therefore, an excellent example of the advance made in naval science during the past decade.

The machinery of the *Swift* will consist of quadruple Parsons turbines, which are also being manufactured at the Laird works at Birkenhead. These turbines will drive four shafts, with a propeller on each shaft. Two engine rooms have been provided for the *Swift*, in order to diminish the size of the water-tight compartments, and there are novelties introduced in order to accommodate machinery of the large power required in the comparatively small space at the disposal of the contractors. The boiler installation will consist of twelve "Express" straight-tube boilers, to be fed with liquid fuel, 180 tons of which will be carried in the tanks of the *Swift*. Her cost will amount to more than \$1,250,000 by the time she is completed.

SMALL CRAFT DEVELOPMENT

The British Admiralty is forging ahead in the movement, now quite common among the more important foreign navies, involving thorough and rapid development of their mosquito fleets. Attention is being concentrated, on the one hand, on the production of the improved *Dreadnought* type of battleship, and on the other, in the increase in number, size, and efficiency of destroyers, torpedo boats, and submarines. The British naval programs of the past three years have provided for thirteen destroyers, thirty-six torpedo boats and thirty-one submarines. The destroyers comprise an even dozen of the Tribal class that have been authorized, five of which have been launched, and two others of which, the *Amazon* and *Saracen*, are building respectively at Chiswick and Cowes; and the *Swift*, which has just been launched, is the thirteenth. The other five Tribal destroyers are being given out on contract. Twelve of the thirty-six torpedo boats have been completed and are in commission; another twelve of the 1906-07 program are well on their way toward completion, three having been launched in a very forward state, while two of the twelve vessels of the current 1907-08 program have been ordered from Messrs. Denny and Brothers. These craft were all styled "coastal destroyers" when projected three years ago; but the increase in both size and speed of destroyers has been so rapid during the past few years that the former "coastal destroyers" are again merely plain torpedo boats before they are completed. The latest, or third of the 1906-07 lot to be launched, is *No. 20*, which took the water at the Thornycroft yards on January 21, 1908. Like other destroyers of the same class thus far launched, *No. 20* is 180 feet long, and with turbines and oil fuel is to have a guaranteed speed of 26 knots.

THE SUBMARINE AS A NAVAL FACTOR

The thirty-one submarines authorized during the past three years for the British Navy comprise eighteen of the *C* type and thirteen of the *D* class. The boats of the program of 1905-06, ranging in designation from *C-1* to *C-11*, have all been launched and delivered from the yard of Messrs. Vickers, at Barrow. The remaining seven boats of this type are those of the following year's program, five of which are being built at Barrow and the other two at *Chatham*, from the plans of the Vickers. An experi-

mental submarine of the "D" class completes the eight vessels of the program of 1906-07, all of which should shortly be ready for service, with the exception of those building at Chatham. So far as known, none of the twelve submarines of this year's program have yet been laid down. British destroyers have increased in size since the River class of 1904, from 515 tons to the *Swift* of 1908 displacing 1,800 tons, and the displacement of submarines has also more than doubled.

Discussing the status of the submarine, the United Service Gazette of London says:

"What can a submarine, properly manned, actually accomplish? asks a daily contemporary. It can travel under favorable weather conditions at 13 knots in surface trim, while under water it can run at nine knots. The effective radius of action of one even of the smallest type of this vessel is 400 miles from the coast on the surface, and 25 miles under water. Special construction in war vessels may do a great deal to neutralize, or at least very much reduce, the danger of submarine attack. Experiments have confirmed the view that a moderately thick layer of water is one of the best protections against modern torpedo attack. To secure this water layer the modern battleship of the Dreadnought class is built practically in the form of one hull inside another, thus permitting the space to be readily filled with water. By this device, combined with internal armor protection below the water line and much cellular division into watertight compartments, it is considered that the best resistance to submarine attack can be attained. Dreadnoughts are, however, expensive, and in spite of this latest design in reply to the submarine's tactics, the fact remains that the highest experts are at present much exercised at the difficulty experienced in keeping the submarine in the proper humble position of subordination which its comparatively insignificant size appears to demand."

PROGRESS OF THE TÉMÉRAIRE CLASS

Work is being pushed upon the three improved *Dreadnoughts* of the *Téméraire* class,—the *Téméraire*, *Bellerophon*, and *Superb*,—all of which have been launched. The first consignment of turbines has arrived at Portsmouth Dockyard for the *Bellerophon*, and the work of installing them began early in January. One of her funnels has been set in position, and an alteration in the shape of her fore funnel is one of the minor improvements to be introduced. In the *Dreadnought* the funnel has flat sides and circular ends, but this form holds too much wind. The fore funnel of the *Bellerophon* is therefore elliptical. The after one will be circular. One of the British service papers makes the following interesting observation:

"We notice a recrudescence of the story that the

Bellerophon, *Téméraire*, and *Superb* will differ from the *Dreadnought* in that the middle turret guns will fire over the after turret. There is absolutely no truth in this rumor. A little reflection will show that no advantage would be gained by being able to train the midship guns over the after ones, as there is plenty of room to train them without it, and firing over the after turret would probably damage everybody inside that turret, and certainly disconcert their aim. All such points as this were gone into very thoroughly in the original *Dreadnought* design. Whatever is to be said for or against the *Dreadnought*, her guns and the disposition of them were only arrived at after very careful thought and due consideration. The one thing more thought of than any other was how to secure the maximum of training with the minimum of interference. No 'after thought' is therefore likely to improve the *Dreadnought* arrangement from the practical viewpoint. The *Bellerophons* will carry exactly the same big guns as the *Dreadnought*, in exactly the same way. Their anti-torpedo armament may be differently placed, and the rig will be different."

The *Téméraire*, which is also being completed for sea, is progressing in the dock at Devonport dockyard, and the first of her ten breech-loading 12-inch guns of new type has just been delivered from the Armstrong works at Elswick. It measures 46 feet 4½ inches long, or 11 feet longer than the Mark VIII. guns mounted in the British *Majestic* class, and weighs 56 tons 700 pounds, against 40 tons of the earlier type. There is a great breech with a somewhat abrupt taper commencing near the rear throat rings and terminating in a very long muzzle end. The full charge of cordite used in this gun will be 260 pounds against 174 pounds in the Mark VIII. gun, and the new type will have a muzzle velocity of 2,900 feet per second and a total muzzle energy of 48,000 tons. The gun will be known as the *Dreadnought* type, and a special feature will be a powerful quick-motion breech gear attachment.

THE LORD NELSON CLASS

By the end of March, the British fleet is expected to be strengthened by the commissioning of two new battleships, two armored cruisers, five torpedo-boat destroyers, and three first class torpedo boats. The two battleships are the *Lord Nelson* and *Agamemnon*, 16,500 tons, each armed with four 12-inch and ten 9.2-inch guns. The cruisers are the *Shannon* and *Minotaur*, 14,000 tons, each carrying four 9.2 inch and ten 7.5-inch guns. The destroyers are the five fine vessels of the Tribal class. The *Lord Nelson* replaces the battleship *Magnificent*, which is to undergo a refit at Chatham. Launched at the Palmer yards at Jarrow on September 4 last, the *Lord Nelson*

early in January proceeded down the Tyne for her gunnery, steaming, and torpedo trials. The main Krupp cemented armor amidships, over the machinery and other vital parts, is twelve inches thick, tapering to six inches at the bow and four at the stern. Above this, and extending to the upper deck, the armor is eight inches thick. Forward and aft are the usual bulkheads, also eight inches thick, and within them are the barbettes, which are mainly of 12-inch armor. The mountings of the 9.2-inch guns are protected by armored barbettes with heavy plating hoods. The *Lord Nelson* is a sister to the *Agamemnon*, and was designed by Sir Philip Watts almost immediately upon his appointment as Director of Naval Construction to the Admiralty.

TRIALS OF THE SHANNON AND MINOTAUR

The trials of the new armored cruisers *Shannon* and *Minotaur* seem to have been satisfactory. They are sister ships, the only difference between them being that the *Shannon* has hollow lines at the bow and the *Minotaur* straight lines. On her first thirty hours' steaming trial the *Shannon* developed an average speed of 14.30 knots upon an indicated horse-power of 5,864. On her thirty hours' trial at seven-tenths power the *Shannon* developed 19,621 horse-power, giving a mean speed of 20.92 knots; and on the eight hours' full power trial the engines developed over 20,000 horse-power and gave a mean speed of 22.47 knots, with a mean consumption of coal of only 2.1 pounds. The *Minotaur* excelled the *Shannon* in her thirty hours' trial at seven-tenths power, by registering a speed of 21.47 knots an hour at 19,750 horse-power off the Cornish Coast. During the eight hours' full power trial, the *Minotaur* made six runs over Admiralty measured mile at a mean speed of 23.01, with a coal consumption of 1.50 pounds, and an indicated horse-power of 27,856.

The gun trials of the *Shannon* were important and interesting, since the ship is fitted with all the latest improvements to the four 9.2-inch and ten 7.5-inch gun mounting with which the vessel is armed. The guns for both the *Shannon* and *Minotaur* are regarded as the finest examples of the 9.2-inch armament yet produced. They are of the Mark XI. pattern, weighing 29 tons, as follows: Length, 39 feet 6 inches; range, 12,000 yards; projectile, 380 pounds; charge, 130 pounds of cordite; muzzle velocity, 2,900 feet per second; armor penetration at 3,000 yards, 11½ inches of steel; energy, 21,000 foot tons; weight of mountings, 65 tons; weight of shield, 78 tons. The *Minotaurs* are not as trim looking as the

Warriors, and differ greatly from the latter, being higher in the water, without the "rake" of the earlier cruisers. A peculiarity of the *Minotaurs* is that the funnels are unequally spaced, the fore funnel being placed almost against the foremast, with quite a distinct gap between it and the other three.

MAGAZINE COOLING ARRANGEMENTS

Regardless of expense, improved cooling arrangements are to be introduced in the magazines of all British fighting ships of the first and second lines so as to prevent abnormally high temperatures and the resultant deterioration of cordite and other explosives. This decision grows out of the fact that the British naval authorities were among the first to recognize that one of the lessons taught by the terrible explosion on the French battleship *Jena* is the importance of providing the fullest possible ventilation in the magazines of warships. Approximately \$1,000,000 was first allotted for this purpose by the Admiralty, early last year, and Chatham was the first government dockyard to receive a supplementary grant for the installation of the various cooling arrangements. The plan is to install the cooling apparatus in all new fighting ships as the vessels are built, and in the older ships as soon as they are sent to the dockyards for repairs. The Portsmouth dockyard authorities have been engaged in fitting refrigerators or cooling apparatus to warship magazines for two months past. Shortly after the \$1,000,000 allotment, a special grant of nearly \$200,000 was made to that dockyard, and this sum has since been increased to over \$200,000. The battleship *Britannia*, which was recently refitted at Portsmouth, had refrigerators supplied for her magazines, and the *King Edward VII.*, which is to have extensive repairs carried out at Portsmouth, will be treated similarly. Refrigerators are also to be installed in the *Goliath* and *Canopus*, which are preparing for service in the Mediterranean, and the general orders of the Admiralty are that all battleships and cruisers are to have their cooling apparatus fitted with the least possible delay. A large number of workmen have been working overtime at Devonport installing cooling apparatus in the cruisers *Arrogant* and *Diamond*, and the battleship *Russell* has been ordered to Devonport for similar treatment. In nothing that the British Admiralty has done in recent years has there been greater insistence upon having the work completed rapidly than in the installation of this new cooling apparatus.

The new ventilating system is as follows: Each chamber used for the distribution of air consists of a steel

trunk or box, through which a number of pipes pass, which are secured to the end plates, very much like the tubes in an ordinary boiler. When the ventilation system is in operation the pipes are filled with a cold briny solution, and the air, which is drawn through the chamber by a fan, is cooled by its contact with the cold pipes before passing into the magazine. About seventy per cent of the cost of installation goes to contractors for brine pumps, motor fans, water machines, and other appliances for distributing cold air.

FRANCE

REORGANIZATION OF THE FRENCH FLEET

The French Navy will maintain in Mediterranean waters during 1908 a first squadron,—in commission with complete complements—throughout the entire year. This will comprise two divisions of three armored cruisers each, and a division of three armored cruisers, as well as three "repeating" cruisers, and six torpedo-boat destroyers. There will also be a second squadron in commission throughout the year—with reduced complements—consisting of six battleships arranged in two divisions, and a division of three armored cruisers. In addition, there will be a division of four battleships and three cruisers in the normal reserve. In Atlantic waters, with headquarters at Brest, there will be a squadron comprising two divisions of three armored cruisers each, with two "repeating" vessels and two divisions of six destroyers each, all in commission throughout the year, with full complements. The realization of this plan is made possible by the entry into service of the vessels of the 1900 program, and the maintenance of older vessels which possess fighting value. The six battleships of the *Patrie* type are almost ready and they will compose the active Mediterranean squadron. They are:

<i>Démocratie</i> ...	14360 tons....	4 12-inch; 18 6.5-inch guns
<i>Justice</i>	14360 tons....	4 12-inch; 18 6.5-inch guns
<i>Vérité</i>	14360 tons....	4 12-inch; 10 7.6-inch guns
<i>Liberté</i>	14360 tons....	4 12-inch; 10 7.6-inch guns
<i>République</i> ...	14360 tons....	4 12-inch; 10 7.6-inch guns
<i>Patrie</i>	14360 tons....	4 12-inch; 10 7.6-inch guns

The Morocco situation has affected the arrangements for the Northern Squadron which, for some months, has consisted of only two armored cruisers. This reorganization will give the Northern Squadron three divisions instead of two, and Admiral Jauréguiberry will have two rear admirals under his orders. These results are attained by suppressing the North Atlantic Division; and

Admiral Thierry, who commanded it, is appointed to the new division of the Northern Squadron, while Admiral Philibert, who is nominally under the orders of the commander-in-chief of the squadron, will continue to exercise authority over the cruisers and transports detached off the coast of Morocco.

FINAL TRIALS OF THE VÉRITÉ

Complete success crowned the final full-power trials of the battleship *Vérité* at Douarnenez under a board of officers headed by Rear Admiral Kiesel. During the full-power run of ten hours the Belleville boilers developed 20,433 horse-power or 2,433 horse-power more than required by the contract, and the speed attained was 19.20 knots, or 1.26 knots more than stipulated by the contract, the machinery being reported as having worked with perfect ease. Some time before the holding of these final trials the *Patrie* and *Justice*, of the same class as the *Vérité*, completed a series of remarkable preliminary trials. In the course of a three hours' trial the *Justice* developed 18,500 horse-power with only 18 boilers working, the rate of combustion being 34 pounds per square foot (166 kilogrammes per square metre) of grate area, and the consumption 1.89 pounds per horse-power, this being the French record for economical consumption under the conditions of the trial. The *Patrie* steamed during 62 hours at natural draught at 17 knots speed with all her boilers working, then ran under forced draught with 12 boilers, at a rate of combustion of 24.5 pounds per square foot. The duration of the forced draught trial was to have been 24 hours, but the sea became very rough, flooding the ship's deck, the vessel rolling heavily, and water penetrating the holds. The stokers' work became difficult, and after only 6 hours at this rate of combustion it was decided to reduce the combustion to 16.5 pounds per square foot, which was maintained for 28 hours until arrival in port. During this trial the *Patrie* covered 1,600 nautical miles without interruption. The *Justice* and *Patrie* are each fitted with reciprocating, triple-expansion 18,000 horse-power engines; the boilers being of the Niclausse type with large tubes.

A WARNING FROM DE CUVERVILLE

Discussing the Naval Budget recently in the French Senate Admiral De Cuverville declared that the French Navy had dropped back into fourth place among the naval powers of the world, and would soon fall behind Japan into fifth place unless means were provided for the rapid construction of battleships as fighting units. He as-

serted that flotillas, however valuable they may be for their special utility, would never provide the nation with the fleet which it required for self-defense and preservation. His belief was expressed that the inferiority of France was due to three main causes:

First—The long time it takes to build ships in France.

Second—The poor utilization of funds placed at the navy's disposal.

Third—The insufficiency of funds, new plants, dry docks, machine tools and mechanics.

It was brought out in debate that one entire year was lost in the case of the 13,400-ton armored cruiser *Waldeck-Rousseau*, and 15 months were lost in the case of the sister ship of the same type, the *Edgar-Quinet*; that while the order to put the new 18,320-ton battleships *Danton* and *Mirabeau* in hand was dated May 8, 1906, the keel-laying of these ships was not commenced until 1907. In defense of this delay the Minister of Marine said it was caused by the decision to install turbines instead of reciprocating engines in these two battleships.

HOMOGENEOUS BIG SHIPS NEEDED

Minister of Marine Thomson is strongly advocating the policy of building ships so as to have France fall into line with other great naval powers which are building ships in groups in order to get a homogeneous battle line composed of large ships of the same type. The 1900 building program was based on this idea, and has furnished the six battleships of the *Patrie* class. The six *Dantons*, now building, are also of the same type, but it will be three years before they are in commission. While the United States has adopted the unit of four ships to a squadron in the fighting line, the French Navy has adopted three such ships to a squadron. This is the basis upon which the fleet is now being reorganized for Mediterranean and Atlantic waters.

WORK OF THE BOILER COMMISSION

A commission of French engineers recently visited Great Britain to inspect the Babcock and Wilcox boilers installed in various British ships, with a view to their adoption in the six new French battleships of the *Danton* class. The report of the commission, which has now been made public, expresses a preference for the Niclausse and Belleville boilers, which are in use in the *Patrie* class, and other vessels of the French Navy. The main objection to the American type of water tube boiler is declared to be its extra weight as compared with French types.

COMMUNICATION-BUOYS ADOPTED.

As a result of experiments recently carried out by a Technical Committee in the first Channel Flotilla, Minister Thomson has ordered the adoption of buoys fitted with telephonic apparatus to enable the crews of submarines to communicate with the surface in case of accident. These buoys are of great buoyancy and capable of withstanding the pressure of water at a depth of 50 metres. The submersible *Aigrette* was used in the experiments, which were carried out off the dockyard at Cherbourg. The floats will be fitted to all submarines as speedily as possible.

A MOTOR TORPEDO BOAT

A small motor torpedo boat displacing only 8 tons has been built for the French Navy for experimental purposes at the Petit Quevilly, near Rouen. Her upper works are of steel and include water-tight compartments for safety. The hull is made of thin steel, and has a Cazes type motor developing 170 horse-power with 900 revolutions, driving a reversible screw, as well as auxiliary machinery. The boat recently ascended the Seine at 14 knots speed, and on trial attained a speed of 16.3 knots. It has a torpedo tube in the bow, measures 52 feet 5 inches long, 8 feet 9 inches beam, 3 feet extreme draught and can be navigated by two men.

GERMANY

BATTLESHIP BAYERN READY FOR LAUNCHING

The first German 19,000-ton battleship of the improved *Dreadnought* type—the *Ersatz Bayern*—has her launching this month at Wilhelmshaven. The Germans are coming to the front as rapid builders of warships and have accelerated the building of this vessel so as to ascertain as early as possible the results of the gunnery, steaming and steering trials of this new German type of fighting unit. The Germans hope to have the *Bayern* ready for these trials before the end of 1908, and to have her in commission by the spring of 1909. The work already done on the ship has been rapid. She was to have been laid down last spring, but was delayed in having her keel set on account of the destruction of the building slip at Wilhelmshaven. This led to rumors that the Germans would be backward with their *Dreadnoughts*. The fact that the *Bayern* is about ready for launching dispels the doubts of the croakers who have been declaring the German *Dreadnought* program to be something of a paper rather than a steel one.

SOME BRITISH COMMENT ON GERMAN ACTIVITY

British naval circles are very deeply interested in the vitality which seems to be entering into the German naval system. Emperor William and his advisers are "playing the game" for all it is worth, and are not content with resting supinely while others go ahead. Their ambition is to force the German Navy ahead rapidly to second place, and a close second, too, to Great Britain. This activity is manifested not only in the shipbuilding programs, but also in all of the concomitants. Naval bases are being strengthened, new ones established, docks planned, and particular attention is being paid to the Baltic and North Sea problems and their connecting link—the Kaiser Wilhelm Canal. Discussing the German plans a British service paper, *Broad Arrow*, says, in part:

"We are to witness a great development of the German Navy this year. We scarcely need recapitulate the details of the proposed increase to the German Navy. Our readers know of the acquisition and strengthening of Heligoland, of the widening of the Kaiser Canal, of the understanding with Sweden, of German attempts,—not openly avowed,—to obtain naval bases at Casa Blanca, Funchal, Fernando Po, in South Africa, and a dozen other places. They know or should know of the excellent battle training of the German Fleet, of the military excellence of its officers, their careful study, fine physique, and the value and perseverance of German seamen. Do the British people know that two German *Dreadnoughts* are on the stocks, or that by 1915 the German Fleet will be second only to that of Great Britain in numbers and in power?"

THE FUTURE OF HELIGOLAND

Much has been said recently about the crumbling of Heligoland into the sea. The decision of the German Government to erect heavy fortifications and to establish a base on this important North Sea island should be sufficient refutation of this idea. This plan is based upon reports both on the strategic situation of the island, and upon the character of its foundations, which are reported to be sound enough to withstand the firing of heavy ordnance. The island is divided into two parts, one of which is much higher than the other. A dockyard and port will be established on the lower level, while carefully screened forts, mounting the heaviest modern Krupp guns, will be constructed on the higher land, so as to keep an enemy's ships at a respectful distance from the new base. Announcements in the German press are to the effect that the new Heligoland naval port will comprise a dockyard, arsenal and all the other requirements of a naval station, capable of sheltering an important fleet. A British commentator on the position of Heligoland says:

"We gave away Heligoland to Germany a few years ago, with, as Punch put it, a 'pound of tea.' During the Franco-German War of 1870-71 the French Fleet, which was so powerful that the Prussian Navy did not dare to meet it at sea, anchored under the lee of Heligoland, but just outside British waters. It was thus able, without actually disembarking troops, to watch the mouth of the great river and to place an embargo on the trade of one or two German ports. This caused considerable ill-feeling against England at the time. But the fact was that without declaring war against France, Great Britain was unable to prevent a French Fleet from anchoring off the German coast, so long as it kept outside the three-mile limit of the coast of Heligoland."

STRENGTHENING NORTH SEA-BALTIC DEFENCE

Besides the establishment of a torpedo boat station at Cuxhaven, the German Government proposes building a large drydock in the lower reaches of the Elbe River, so that damaged warships will not have to pass through the Kaiser Wilhelm Canal in order to undergo extensive repairs at Kiel. Cuxhaven was first chosen as the site for the new dock, but as this position is regarded by the German strategists as too exposed, they have selected Brunsbüttel, which lies further inland and is close to the Kaiser Wilhelm Canal. This drydock will be the first step in the direction of creating a new naval port at Brunsbüttel, and will be followed, it is understood, by the construction of other docks. The proposed enlargement of the Kaiser Wilhelm Canal at a cost of over \$50,000,000, toward which a grant of \$3,430,350 has already been voted, has called forth two plans for an entirely new North Sea-Baltic Canal, so that naval and merchant ships may each have their separate waterways between these two important seas. Both of these plans have for their eastern termini the Eckernförde, and one of them, elaborated by Captain Sebelin, formerly of the German Navy, takes the canal across to Bosum, on the west coast, a distance of 45 miles. It is urged in favor of this plan that with two piers a large closed basin can be obtained at the Eckernförde terminus with adjoining areas convenient for industrial establishments. It is also urged in behalf of this plan that it will cost less than the proposed enlargement of the Kaiser Canal, and that a ship can pass through it in 10 hours less time. The other plan provides for a canal from Eckernförde to Bosh, on the river Elbe, somewhat south of Brunsbüttel, the western terminus of the present canal, crossing the present canal at Rendsburg. This new canal would be about 48 miles long, something like a dozen miles shorter than the old waterway. While both of these canals would, it is asserted, cost less than the proposed enlargement of the Kaiser Canal, it is believed

that the adoption of the plan for either of them would not interfere with the prosecution of the project for the widening and deepening of the latter.

GUNNERY AND SUBMARINES

Admiral Galster has written a booklet on the sea armament needed by Germany, advocating the French submarine policy. He would adapt the French school's plans to Germany's political and geographical needs, and proposes the early construction of sixty diving boats,—thirty 200-ton submarines for purposes of defense, to prevent a blockade of the North Sea and the Western Baltic, and thirty for offensive warfare in connection with operations in an enemy's territorial waters. This is a marked departure from German Admiralty plans, but is regarded as indicative of a significant trend of opinion. It is also significant that Germany proposes in this year's estimates nearly seven times as much for submarines as in 1905, and nearly twice as much for 1909 as for the current year's estimates. The German submarine U-1 has been undergoing extensive experiments, upon the result of which will depend the new German submarine design.

SOME RECENT SPEEDS

Advices from Cologne indicate that expectations have been surpassed in the recent trials of the new class C battleships of 13,200 tons displacement. The battleship *Pommern*, for example, attained a speed of 19.21 knots upon 20,400 horse-power, with 122.8 revolutions per minute, while the *Hannover*, a sister ship—both of these vessels belonging to the *Deutschland* class—made from 16 to 19 knots with 22,492 horse-power and 121.9 revolutions per minute. The maximum speed called for by the contracts for these battleships is 19 knots. The *Hannover* has attained a speed of 18.5 knots with 17,764 horse-power, and the *Deutschland* on a six-hours forced-draught run developed 16,939 horse-power, which gave a speed of 18.53 knots. Four of the boilers on the *Pommern* are adapted for oil-stoking, and the best results are declared to have been obtained with three-fifths of coal and two-fifths oil stoking.

ITALY

THE CRUISE OF THE REGINA ELENA

French and British naval critics have shown considerable interest in the latest of modern Italian battleships, the *Regina Elena*, which visited England in December and France in January. She was the first of the *Vittoria*

Emmanuele class to be completed, and is probably the fastest battleship in the world, being a great deal swifter than the *Dreadnought*. On trial at three-fourths power the *Regina Elena* developed 15,473 horse-power, giving 20.33 knots speed. On full power she developed 23,000 horse-power and developed 21.7 knots speed, which was exceeded on short runs. Her economical speed is 15 knots, and with 15 boilers going she has comfortably made 20 knots for periods of indefinite length. The British Navy is now rushing the installation of cooling apparatus. The magazines of the *Regina Elena* were, however, fitted with special cooling refrigerators, which maintain an even temperature of 20 degrees centigrade, long before she visited England. All of the vessels of the *Regina Elena* type were designed by Colonel Cuniberti, the distinguished Italian naval constructor, who is believed to have been the first to put forward the idea of fast, heavily armored battleships provided with all big guns of 12-inch calibre. On a small displacement of 12,625 tons Colonel Cuniberti has accomplished wonders, having provided a 21-knot battleship with great weight economy and utilization of space, carrying two 12-inch 45-calibre Armstrong guns, twelve 8-inch 45-calibre Armstrongs, twelve 12-pounders, and twelve 3-pounder Armstrongs, in addition to four Maxims and four 18-inch submerged tubes of the Elswick patent. One of the features of this ship is a novel girder construction under the big gun turrets to take up firing stresses. During target practice all the big guns have been fired ahead, astern and on broadside without injury to the vessel. All guns and hoists are maneuvered electrically, the big guns have the unusual training arc of 300 degrees, instead of the usual 240 degrees, and it is asserted by experts that in many positions the ship can deliver as much 12-inch fire as the usual four-big-gun ship. Each upper 8-inch turret has the large training arc of 180 degrees, and fire control is from the top of the conning tower, where there is a heavily armored station. The ship is heavily armored, and great use is made of coal protection in addition to the armor.

THE ITALIAN DREADNOUGHT

The yards at Castellamare are preparing for the construction of the first of the four improved *Dreadnoughts* to be constructed for the Italian Navy. The vessel being put in hand there will be 500 feet long by 80 feet beam, and will have a displacement of 19,000 tons, with engines working up to 34,000 horse-power, giving a nominal speed of 24 knots.

JAPAN

THE ARMAMENT OF THE HUKI

The new Japanese battleship which was laid down last May at Yokosuka has been named the *Huki*. It was originally declared that she would carry twelve 12-inch guns, but the understanding now is that her armament will consist of ten 12-inch guns, with a greatly increased anti-torpedo-boat armament of 4.7-inch guns and of 6-inch guns. The report as to the 6-inch guns cannot be officially verified, but if they are incorporated in the new ship the adherence of Japan to that calibre may be regarded as significant. It will mean that Japan has adopted the all-big-gun-ship principle without throwing the intermediate calibre overboard.

The "Japan Mail" publishes an article originally appearing in the "Mainichi Dempo," asserting that since the war with Russia remarkable progress has been made in the armament of Japanese ships, their manner of gun-mounting, and in the development of ammunition. The statement is made that the guns mounted on Japan's ships during the war attained a range of 17,000 metres (about 12,000 yards), while those mounted today range from 18,000 to 19,000 metres, with an even greater increase in facilities productive of more accurate and rapid firing. The article asserts that at Tsushima the Japanese scored 4 hits to every one hit made by the Russians, and that, in armament, the Japanese ships of today are 33 1-3 per cent more powerful than those participating in the last naval battle of the recent war.

NEW JAPANESE STEEL WORKS

Particulars have been announced of an agreement entered into in December between Messrs. Armstrong, Whitworth and Company; Messrs. Vickers Sons and Maxim, Limited, and the Hokkaido Colliery and Steamship Company—a Japanese concern—for the establishment of a large steel plant at Muroran, on the south coast of Hokkaido, Japan, with a capital of nearly \$5,000,000, half being subscribed by Messrs. Armstrong and Vickers, and the remainder by the Oriental company. The Japanese company agrees to furnish the coal, the British companies to supply the iron and experts, while neither party is to establish a similar factory anywhere else in the Orient. The new firm will manufacture ammunition and build ships, in addition to making steel for commercial purposes, the agreement providing for the relinquishment of agents of the English firms in the Far East, their business being absorbed by the new firm,

in which they have a half interest. When buying goods by tender, the Japanese firm is to give preference to the English partners when prices are equal.

RUSSIA

COMPLETION OF THE NEW RURIK

The new Russian cruiser *Rurik*, built in England by Messrs. Vickers Sons and Maxim has been completed and turned over to Captain Stetzenko and a party of Russian officers now in England to witness the official trials, after which she will be taken to Libau. The *Rurik* displaces 15,000 tons, and is rather heavily armored. She mounts four 10-inch and eight 8-inch guns. She was begun in 1905.

ANOTHER NEW RUSSIAN CRUISER

The Russian armored cruiser *Makharoff*, built by the Forges et Chantiers de la Méditerranée, at La Seyne, Toulon, France, is now ready for service. Trials just held gave this vessel a speed of 22.55 knots an hour on full power—1.55 knots over the contract speed. Her displacement is 7,900 tons, and she is a reproduction of the famous old Russian cruiser *Bayan*, which was sunk at Port Arthur during the recent war, subsequently refloated by the Japanese, who renamed her the *Aso*, and included her in the list of ships of the Japanese Navy. Russia launched the new *Bayan* on August 15, 1907, and she too will soon be ready for service—making, all told, three new additions to the Russian fleet, including the *Makharoff*, and the new *Rurik*. The *Makharoff* differs from the old *Bayan* only in having but one mast, placed between the funnels. A single mast is now the regulation for all Russian armored cruisers. Both the *Rossia* and *Gromoboi*, which formerly had three masts, are now reduced to solitary masts.

AUSTRIA

FEATURES OF THE ERSATZ TEGETHHOFF

According to accounts of the visit made in January by the Austro-Hungarian delegates to the yards of the Stabilimento Tecnico, at Trieste, where the new 14,500-ton battleship *Ersatz Tegetthof* is building, that vessel will have four 12-inch guns, eight 9.4-inch guns, and 20 smaller quickfiring. It is understood that as a result of the lessons learned in the Russo-Japanese war there is to be an arrangement in this and future Austrian battleships by which the equilibrium of the vessel is preserved whenever an explosion or collision fills a water-tight compartment. The corresponding compartment on the

opposite side of the vessel is so arranged as to fill simultaneously, and though the vessel is thereby brought lower in the water, it is saved from heeling over and exposing vulnerable parts of the ship to the fire of the enemy. Two

rudders will also be fitted to the battleship, and in the ammunition magazines there will be installed cooling apparatus to prevent the temperature from rising above 76 degrees Fahrenheit.

THE BLUEJACKETS FRIENDS

THEATRE MANAGERS AND THE ENLISTED MEN

Because of the many statements that enlisted men of the Navy could not secure admission to high-priced theatres, and also because of the verdict rendered by the Supreme Court in the case of *Fried. J. Buzenle vs. the Newport Amusement Company*, the President of the Bluejackets Friends on February 14 sent out the following to the managers of fourteen different theatres in New York and Philadelphia:—

"Will you kindly inform me as to your attitude regarding the enlisted men of the United States Navy? Are they admitted to your theatre when in uniform and welcomed therein upon the same basis established for those citizens who attend in civilian dress?"

Prompt replies came from every manager, and in each case favorable to the enlisted men. A few of the answers received are given.

"They are more welcome in their uniform, for that is a badge of honor to the man who wears it. And we honor our country in honoring them. They are as welcome as the flowers in spring."—*Max Burnham, Wallack's Theatre, New York.*

"No discrimination made against any well behaved citizen."—*Madison Square Garden Co., New York.*

"Yes, by all means."—*Madison Square Theatre, New York.*

"Enlisted men of the United States Navy will be admitted when in uniform and surely be as welcome as any citizen in civilian dress."—*Metropolitan Opera House, New York.*

"Enlisted men have always been freely admitted to the same courtesies as citizens in civilian dress. I think I have noticed at least a dozen men in uniform in our orchestra seats during the past week. They are always welcome."—*Stuyvesant Theatre, New York.*

"We certainly would not discriminate against the enlisted men of the United States Navy."—*Broad Street Theatre, Philadelphia.*

"We admit sailors in uniform, provided they behave themselves as any orderly citizen should."—*Chestnut Street Opera House, Philadelphia.*

"All respectable and well behaved citizens are welcome at our theatres."—*R. W. McFarland, Manager Lyric and Adelphi Theatres, Philadelphia.*

From the managers of five of the leading Boston theatres approached on the subject the same cordial welcome is extended to the men behind the guns; and as the work of the Bluejackets Friends progresses it becomes more and more evident that a mistaken idea prevails regarding the attitude of broad-minded, intelligent Americans toward our sailors. Almost without exception they are intensely interested in the matter, and give a high measure of respect to the men who wear our country's uniform. In times of peace it is taken for granted that when a bluejacket is seen on shore he is well able to care for himself, and any interference on the part of strangers would be resented by him. No neglect is intended, and the insults received come from those whose patriotism is a matter of dollars and nickels. Well behaved man-of-war's men are always welcome in the best places, and if, when on shore leave, an insult is given, the enlisted man should take the giver to task at once. A favor will be conferred on the officers of the Friends if these be reported to them, and prompt attention will be given any complaint. There are ways in which a caterer to the public can be reached without recourse to the law of our country, and when the sentiment in favor of the enlisted men becomes alert no man will oppose his own interests by refusing to serve them. This is one of the purposes for which the Society is organized, and much effective work is being done. It is the earnest wish of the officers and members of the Friends that the enlisted men co-operate with them by reporting any instances of disrespect to their uniform which come under their notice, and also by suggestions of any kind which will lead to the bettering of conditions for them.

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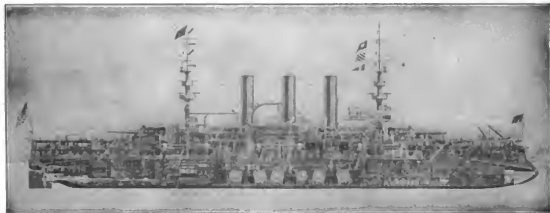
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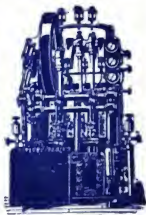
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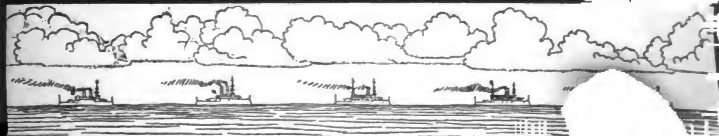
THE NAVAL MILITIA

FOREIGN NAVAL CORRESPONDENCE:

BRITISH NAVAL PROGRAM

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THE NAVY

Vol. II

WASHINGTON, D.C., MARCH-APRIL, 1908

No. 3

NOTE AND COMMENT



*The Advantage
of High
Gun Positions*

From a photograph of the forward big-gun turret of one of the newest battleships of Admiral Evans' fleet.

GERMANY, England, and Japan have scrupulously fostered a strong merchant marine as invaluable adjuncts to their trade and their navies. The United States Senate is to be congratulated upon the important step it took in the same direction a few weeks ago, when it passed the Gallinger Mail Subsidy Act. The Senate Act authorizes the Postmaster-General to pay for ocean mail service under the Act of March 3, 1891, in vessels of the second class (16 knots and less than 20 knots) on routes to South America, the Philippines, Japan, and Australia, four thousand miles

*An
Important
Beginning*

or more in length, at a rate not exceeding the rate now applicable to vessels of the first class. The present compensation for vessels of the first class (20-knot steamships) is \$4 per statute mile for the outward voyage. Under existing law it has been found impossible to maintain vessels of 16-knots across the Pacific and to South America at the existing subsidy rate of \$2 a mile. The proposed change remedies this situation by increasing the payment to such vessels to \$4 per statute mile, or \$4.60 per nautical mile. Last March there were fifteen American steamships plying across the Pacific. Now only eight

are left. Since the mail subsidy bill of the last Congress was defeated, almost one-half of our feeble American Pacific naval reserve has disappeared.

When Rear Admiral Evans steers up through the Golden Gate, we shall have the grotesque disproportion of two battleships to each commercial vessel engaged in trans-Pacific trade. This is not the worst. The most smarting and humiliating episode of the entire year is the revelation the Pacific cruise of the battleship fleet has afforded that our merchant marine has now shrunk to such a skeleton that it does not contain enough ocean-going steam colliers to provide the indispensable fuel for our ships on their voyage to San Francisco. This has forced the Administration reluctantly to charter foreign steamers to perform a national service. It would be a fatal condition in war. Senator Hale truthfully declared, during the debate on the Mail Subsidy Bill, that "without these foreign colliers" our fleet "would be as useless, and—

"As idle as a painted ship
Upon a painted ocean."

THE members of the House of Representatives deserve unstinted credit for the substantially unanimous manner in which they have come to a belated recognition of the importance of developing Pearl Harbor, Hawaii, as a great American naval base in the Pacific. For nearly a decade, ground bought for this purpose has lain idle, and there is not to-day a more defenceless spot on the globe than this magnificent harbor and coaling base. On April 6 the House made some amends by passing the Bates Bill, directing the Secretary of the Navy to spend \$2,500,000 for the establishment of a naval station at Pearl Harbor. The vote was 246 to 1—Representative Sherwood, of Ohio, being the only opponent of the measure. Party lines were completely lost in the adoption of this project,—as they should always be when national defence and the development of the navy are concerned. It reminded one of the memorable scene in Congress, during March, 1898, when \$50,000,000 was so promptly and generously appropriated by the American Congress for the sinews of war with Spain. The Pearl Harbor bill directs the Secretary of the Navy to establish a naval station at Pearl Harbor, on the site already acquired; to build a graving dock there at a cost of \$2,000,000, to accommodate the largest American warships; and to erect at a cost of \$500,000 all the necessary machine shops, storehouses, coal sheds, and other necessary structures. The

bill makes immediately available \$200,000 toward dredging an entrance channel thirty-five feet deep to Pearl Harbor; \$300,000 toward constructing the dry dock; \$100,000 toward erecting the machine shops, storehouses, and coal sheds; and \$50,000 toward yard development; in all, \$650,000.

Concentration is properly being brought to bear upon the fortification of our continental and insular strategic points in the Pacific. The Fortifications Bill, reported to the Senate, April 6, contains important increases over House figures for this purpose, including money for batteries, emplacements, mine-layers, fire-control apparatus for the army defences of Puget Sound, San Francisco, San Diego, Pearl Harbor, and Manila Bay. Political conditions and the voyage of the fleet have furnished strong arguments in favor of the fortification of the Pacific.

HAVING completed its thirteen-thousand-mile cruise from Hampton Roads to the Pacific, and finished target practice at Magdalena Bay, the Atlantic battleship fleet, according to announcements officially made at the White House and Navy Department, will now proceed around the world, visiting Australia, Japan, and China en route. The final itinerary of the voyage from San Francisco to the Orient, and thence by the Indian Ocean, Suez, the Mediterranean, and the Atlantic, has not been announced; but efforts will be made to have the fleet steam through the Capes of the Chesapeake into Hampton Roads on February 22—Washington's Birthday.

The fleet will leave Magdalena Bay, April 11, and proceed by easy stages up the beautiful Californian coast, where the officers and men will be feted at every city from San Diego to the Golden Gate. On March 28 Secretary Metcalf announced that Admiral Evans, in compliance with directions from the Department to notify mayors of California cities where stops would be made and of the itinerary arranged, had prepared the following schedule:—

"The battleship fleet will arrive at San Diego at 2:30 p.m., Tuesday, April 14; leave at 6:30 a.m., Saturday, the 18th. Arrive at San Pedro at 3 p.m., April 18. The following day the Second Division will go to Long Beach, the Third to Santa Monica, and the Fourth to Redondo. The fleet will reassemble and proceed to Santa Barbara at 6 a.m., April 25."

On April 6 Secretary Metcalf announced the complete itinerary from Magdalena Bay to San Francisco as follows:—

The Cruise Around the World

The Key to the Pacific

Port.	Arrive.	Sail.
Magdalena Bay		April 11, 1908
San Diego	April 14, 1908	April 18, 1908
San Pedro	April 18, 1908	April 25, 1908
Santa Barbara	April 25, 1908	April 29, 1908
Port Harford	April 30, 1908	April 30, 1908
Monterey	May 1, 1908	May 2, 1908
Santa Cruz	May 2, 1908	May 5, 1908
San Francisco	May 6, 1908	

The Fleet arrived at Magdalena Bay March 12. Announcement was made, after Cabinet meeting the next day, that the fleet would continue around the world. Announcement of the receipt of an invitation from Australia had been made by Secretary Metcalf, following a previous Cabinet meeting of February 21, but no decision was announced until the Cabinet gathering of March 12. The invitation was first mentioned in a letter by Prime Minister Alfred Deakin, of Australia, to John P. Bray, American Consul at Melbourne, dated December 24, 1907, saying:—

"I propose, therefore, at a suitable time, to address a formal communication to the Governor General, to be forwarded to the Colonial Office, requesting that an invitation be sent to the President, to permit your fleet to call at the chief Australian ports. I think you will be able to tell your Government what an enthusiastic, whole-hearted welcome battleships under the American flag will receive in the Commonwealth."

Following the Cabinet meeting of March 12, Secretary Metcalf made the following announcement:—

"The battleship fleet will leave San Francisco July 6 for our possessions in the Pacific, stopping first at Hawaii, and then at Samoa. After leaving Samoa the fleet will proceed to Australia, stopping at Melbourne and Sydney for the purpose of accepting the most cordial invitation extended by Sir Alfred Deakin, in behalf of the Commonwealth of Australia. The fleet will then proceed to the Philippines, and, after remaining there a short time, will return to the Atlantic coast, stopping only at such ports en route as are necessary for the purpose of taking on coal."

In issuing this announcement, Secretary Metcalf made public the following letter, addressed to Secretary Root, March 2, by the British Ambassador at Washington:—

"Sir: I am directed by His Majesty's Principal Secretary of State for Foreign Affairs to bring to the attention of the United States Government the hope expressed by the Government of the Commonwealth of Australia that the United States Fleet now in the Pacific Ocean may be instructed to visit the principal ports of Australia, where it would be assured of a most cordial and enthusiastic welcome. I am further desired to inform you that this invitation of the Australian Government to the Amer-

ican Fleet is endorsed most cordially by His Majesty's Government, and to express to you the satisfaction with which His Majesty's Government will welcome an intimation of the acceptance of it by the Government of the United States. I have the honor, [etc.],

"JAMES BRUCE."

Although it was intended that the fleet should make no other foreign call, after leaving Manila, except for coaling, so cordial an invitation was extended by Japan on March 19, that on the following day formal announcement was made of the acceptance of that invitation, too. On the same date the correspondence between Ambassador Takahira and Acting Secretary of State Bacon was given out. Several days later, formal announcement was made that China, through Minister Wu, had also cordially invited the fleet to visit Chinese shores, and that the invitation had been accepted.

Arrangements are now being perfected for the round-the-world journey. It is now the intention to have the new battleships *Nebraska* and *Wisconsin* accompany the fleet, in place of the *Maine* and *Alabama*. By direction of the President, two tentative itineraries have been prepared, one to bring the fleet back to Hampton Roads by December, so as to complete the world voyage within a year, and another to bring it there by February 22. The former plan would rush the ships too much, and interfere with target practice in the Philippines.

The grand review of the combined fleets at San Francisco Bay by Secretary Metcalf will take place May 8. The same day Rear Admiral Evans will haul down his flag as Commander-in-Chief, and Rear Admiral Charles M. Thomas will assume command. His broad pennant will fly at the mast until July 7, when Rear Admiral Charles M. Sperry will take command, on the departure of the fleet from San Francisco. Rear Admiral Sperry has cabled to the Department a tentative itinerary for the cruise, and this has been tentatively approved by the Administration. The itinerary is substantially as follows:

Leave San Francisco, July 7. Arrive Honolulu, July 15; leave July 25. Arrive Samoa, August 4; leave August 14, for Australia, two divisions of the fleet reaching Sydney about August 24, the other two divisions visiting Melbourne and rejoining the first two divisions at Sydney about September 1, so as to start for Manila. Arrive Manila about September 15, remaining there eight days, before leaving for Yokohama. Arrive Japan early in October, then visit Chefoo. Return to Manila in November for target practice. Arrive Colombo about December 15. Then, via Aden and Suez, to the Mediterranean and Malta, where maneuvers will be held. Arrive Gibraltar about the first week in February, and Hampton Roads February 22, 1909.

THE NAVY

MARCH-APRIL 1908

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Owing to a change in the ownership of *THE NAVY*, the March number has been so greatly delayed that it has seemed best to combine it with the April number, in a March-April number. The May number will be issued on May 9.

THE SENATE NAVAL INQUIRY

Little of the significance of the testimony as to armor belt and turret defects in our warships, as conditions were disclosed by the testimony before the Senate Naval Committee, has been given in the newspaper reports. This was to be expected, owing to the little space available for each day's report, and also because only close study of the whole matter could enable a reporter to seize at once upon the really important points brought out. The May number of *THE NAVY* will therefore contain a careful digest of all the testimony, together with those parts of the Converse and Capps Reports in which the issue between the critics and the defenders of the present system is presented. The verbatim records of the hearings before the Senate Committee are contained in six pamphlets, entitled, "Hearings Before the Committee on Naval Affairs, U. S. Senate, Senate Bill 3335." Those who wish to read from the verbatim record what is by far the best presentation of the facts by any witness, should study the testimony of Commander Albert L. Key, lately Naval Aid to the President. Commander Key's statement of the facts is admirably clear, inclusive and conclusive.

To Senator Tillman is due great credit for his friendliness to a fair investigation, and for the skilful questioning by which he secured the production of all the pertinent facts. It seems not too much to say that without his patient and persistent effort, in the face of bodily infirmity, the hearings before the Senate Committee would have been nearly or quite a fiasco.

The task begun by *THE NAVY*, in the June number of last year, has not been an agreeable one. It has involved much unpleasantness of various sorts, and the imputation to us of improper motives. But it was necessary, in order that the defects in our ships and our naval system might be corrected, that the facts be brought out and that public opinion be roused to demand a correction of our naval weaknesses. Now that these facts have been made a matter of public record, we trust that their significance will be appreciated by Congress and the country and that the necessary remedies will be promptly applied.

The testimony before the Senate Committee has made public a great number of official documents and figures which absolutely confirm what *THE NAVY* has said about these matters, and effectively discredit the evasive reports of Rear Admiral Converse and Chief Constructor Capps. Now that the correctness of the statements made by *THE NAVY* is proved, we are glad to discontinue, for the present, our editorial discussion of these matters.

THE COMMAND OF HOSPITAL SHIPS

The status of hospital ships accompanying a fleet, as laid down in one of The Hague Conventions lately ratified by the Senate, is of particular interest as showing the judgment of several naval powers in regard to a question that is substantially that at issue in the late Brownson-Rixey controversy. In the Convention for the Adaptation to Naval War of the Principles of the Geneva Convention, after three articles that define different kinds of hospital ships, Article IV contains the following pregnant sentences; and their significance is enhanced by the fact that each sentence stands, in the official text, in a separate paragraph. They are:—

"These vessels must in no wise hamper the movements of the combatants."

"During and after an engagement, they will act at their own risk and peril."

Article V says, in part:—

"Military hospital ships shall be distinguished by being painted white outside, with a horizontal band of green about a meter and a half in breadth."

"The ships mentioned in Articles II and III shall be distinguished by being painted white outside, with a horizontal band of red about a meter and a half in breadth."

"The ships and boats above mentioned which wish to ensure by night the freedom from interference to which they are entitled, must, subject to the assent of the belligerent they are accompanying, take the necessary measures to render their special painting sufficiently plain."

The requirements to be met by the commanding officer of a hospital ship subject to these rules are unmistakable, and indicate, it seems to us, very clearly that such command should be given to a line officer and never to a medical officer. Consider, for instance, the two sentences under Article IV. The Commander of a hospital ship must so handle her that she shall not get in the way of the fighting ships, and shall also keep herself out of danger. On what ground shall we expect a medical officer, while having charge of the hospital arrangements of his ship, so to direct her movements as to conform wisely to the movements of the fleet to which she is attached? In a modern sea fight like that of the Sea of Japan, the opposing fleets may describe very complicated evolutions. The commander of the hospital ship, if he is to keep her in shape to benefit the wounded, must keep out of the way of shell, both from friend and foe. If his ship is sunk, it will do the wounded no good. Moreover, the commander of the hospital ship must know something of the plans of his Admiral, must follow the Admiral's signals, and must, if possible, be near his own fighting ships at the end of an action, in order to render efficient aid.

Consider also Article V, which requires that hospital ships which wish to secure immunity at night make themselves visible. This is the same as saying, as regards a hospital ship accompanying a fleet which is anywhere near a battle, that the hospital ship must not show her

colors, for to do so would be to light a beacon over the whole fleet. Yet, if she is to be handled without lights, she must be commanded by an officer with a knowledge of fleet formation and movements,—one who is accustomed to navigate a ship as part of a fleet at night under such conditions. These are severe requirements. Yet they must be met by the commander of the hospital ship.

It seems to us that no medical officer of any navy, with a due regard for his own reputation for good sense, would for a moment declare himself competent to direct the movements of a hospital ship under these conditions. Nor is any civilian sailing master competent to do so; for no civilian sailing master has had the training demanded by these situations. The Medical Corps command of our hospital ship, the *Relief*, would, we believe, terminate instantly if this country were involved in a naval war. Common sense and the formally expressed views of the naval powers make this practically inevitable.

THE BATTLESHIP PROGRAM

It seems not wholly unfortunate that the House Naval Committee has reported a bill providing for only two battleships, instead of the four asked for by the Department. Undoubtedly the naval requirements of this country demand the very early addition of four battleships of the *Dreadnought* type; but it is probable that the best interests of our fleet will be served by authorizing only two this year.

Several considerations have to be borne in mind in regard to this matter. In the first place, four ships authorized now would in all probability be mere repetitions of the *Delaware* and *North Dakota*. The designs of these two ships, especially in regard to turret arrangements,—which materially affect the interior structure of the ship,—were not finally settled until well into last November. And there appears no reason to believe that the Board on Construction has devised or contemplates any improvement on these ships.

One of these ships, moreover, is herself an experiment. The *North Dakota*, fitted with Curtis turbine engines, is an entirely new venture for our navy; and there is no

means of knowing until after she is afloat and has had her trials, what modifications in her design may be necessary. Like the English *Dreadnought*, she is in a sense our big experimental ship; and until we know what she will do, and whether her designs need changing in order to make her efficient, it is certainly prudent not to duplicate her. It is at least possible that she may not behave well in squadron with ships of the same size driven by reciprocating engines. On the other hand, if the *North Dakota* proves to have the superiorities over ships with reciprocating engines that are to be hoped for, our future big ships should be turbine driven.

Some lessons may have to be learned also from foreign ships. The newly launched German *Nassau*, in particular, is one to whose design our constructors need to pay attention. The number of guns she will carry and their arrangement appear to be so far a complete secret, outside the German officials. Our Berlin correspondent, whom we have reason to trust, says she will carry sixteen 11-inch guns, in an arrangement which he has roughly described. But it is apparent, from the tone of British service journals, that the armament of the new ship is not known in England. This ignorance of the details of the *Nassau* may, in fact, account, more than considerations of economy, for the decision of the British Admiralty to lay down no more than one *Dreadnought* this year. It will be seen, therefore, that neither as to our own *Dreadnoughts*, nor the newest ships of that type abroad, have we such knowledge as is desirable before entering upon a construction of a group of four new ships. Two more *Delawares* would give us a squadron of four ships of the same size; and, in the present uncertainties regarding this type, that is perhaps as far as it is prudent to go now.

The delay that would be occasioned by waiting for the trials of the *North Dakota* and *Delaware* could be compensated for in two ways. The contractors could undoubtedly be helped to finish them in considerably less than the contract period; and as to future big ships, a proper management of preparation should enable us to complete them in two years, instead of in the four or five now required. Measures could be so taken that the delay of

any additional big ship for two years would leave us just as well off four years from now as there is any likelihood of our being if four ships are authorized this year and built under the prevailing system; with the added advantage that we should have "improved" *Dreadnoughts*,—a thing not apparently probable now.

More than this, there is urgent need, before entering upon extensive construction, of adopting a definite naval program extending over a series of years, and planned with reference to the program of other nations. We should decide upon a certain size of fleet, made up of certain kinds of ships, and work consistently and steadily toward getting it. So far we have "muddled along," doing too much one year and not enough the next, and doing it inconsistently, with such a result, for instance, as the launching this year of two battleships, the *Idaho* and *Mississippi*, that are woefully out of date. It is to be hoped that the awakened interest in the navy all over the country will support Congress and the Department in the adoption of a well arranged and definite quantity of naval construction.

LETTERS TO THE EDITOR

U. S. NAVAL ACADEMY.

ANNAPOLIS, MD., March 10, 1908.

The Editor of THE NAVY:

DEAR SIR:—A recent letter to me from Mr. John B. Jackson, United States Minister to Persia, formerly Secretary of the American Embassy at Berlin, calls my attention to some errors that exist in an article from my pen, concerning the education of naval officers. I would be obliged to you if you would publish it. It is, in part, as follows:—

"In regard to the German Navy (page 38): That navy is not composed of men of aristocratic birth, as a glance at the navy list will show you. Only a relatively small number of the officers have titles or the particle 'von,' the sign of nobility. A man's origin must be 'approved of,' but it need not be aristocratic.

"Again, there is a Bavarian Army, but Baden has none. The soldiers in the Grand Duchy form one army corps of the Prussian Army, as do several of those of the smaller States composing the German Empire."

Very truly yours,

E. L. BEACH.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of The Navy)

THE BRITISH NAVAL PROGRAM

LONDON, February 29, 1908.

Disappointment is keen over the reductions made in the Naval Estimates for 1908-09, which were issued last Monday, February 24, over the signature of Lord Tweedmouth and other members of the Admiralty. This is because the expenditure proposed for new construction is the smallest allowed for the Royal Navy this century, and is by no means a reply to the Imperial German program. Under the Estimates, only one new battleship of improved *Dreadnought* type is to be authorized this year. The German Budget, which has received the sanction of the Reichstag, provides for the laying down of three battleships of the improved *Dreadnought* class this year, three next year, three in 1910, two more of these battleships in 1911, and one each year from 1911 to 1917, under the continuous building policy, in addition to large armored cruisers of the improved *Inflexible* type.

Public opinion is thoroughly alert to the activity of Germany, and has urgently demanded that the Admiralty, which has not been blind to the situation, should this year make unmistakable reply to the German proposals; but the Admiralty has been held down in the Estimates by a special effort on the part of the Cabinet, and the policy for 1908 seems to be one of "waiting and watching," with a large building program in view for 1909, if Germany and other naval powers convert their 1908 promises into actual performances. The British government announces, in connection with this year's project, that the two-power standard—equality with the two next formidable navies of Europe, with a margin over for contingencies—will be maintained, and that it will not be affected by this year's reduction. No one denies that this standard will be lacking for the present, but most of the daily papers and the more important professional journals point out that the ships authorized this year cannot enter the battle line before 1910 or 1911, and that while Britannia is "waiting and watching," her rivals are afforded an opportunity for closing the gap between their own and the two-power standard.

Lord Tweedmouth has prepared a lengthy statement explanatory of the Estimates for 1908-09, which was also

made public last Monday as a Parliamentary Paper. Discussing the new shipbuilding program, the First Lord of the Admiralty says, in this Paper:—

"New construction for the year will cost £7,545,202, as against £8,100,000 for 1907-08. The continuous fall in the estimate for new construction from the maximum of £11,654,176 in 1904-05 is thus carried on, and Parliament is asked to vote £4,108,974 less than it was four years ago. Of this sum of £7,545,202, £6,795,202 will be spent on the continuation of ships already under construction, and £750,000 in beginning work on ships of the new program, which is composed as follows:—

- "1 Battleship (improved *Dreadnought* class);
- "1 Large Armored Cruiser;
- "6 Fast Protected Cruisers;
- "16 Torpedo Boat Destroyers;
- "and a number of Submarine Boats, estimated to cost £500,000 in all."

"This program," says Lord Tweedmouth, "suffices for 1908-09; whether and to what extent it may be necessary to enlarge it next year, or in future years, must depend upon the additions made to their naval force by Foreign Powers. His Majesty's Government have every intention of maintaining the standard of the British Navy which has hitherto been deemed necessary for the safeguarding of our National and Imperial interests.

"Between the 1st of April, 1907, and the 31st of March, 1908, the following ships will have been completed and become available for service:—

- "1 Battleship (*Lord Nelson*);
- "3 Armored Cruisers (*Warrior*, *Shannon*, and *Minotaur*);
- "3 Torpedo Boat Destroyers (*Cossack*, *Mohawk*, and *Tartar*);
- "10 Torpedo Boats (of the Coastal Destroyer type);
- "8 Submarines;
- "1 Repair Ship (*Cyclops*) and the New Royal Yacht *Alexandria*.

"On the 1st of April, 1908, there will be under construction:—

- "7 Battleships.
- "4 Armored Cruisers.
- "1 Unarmored Cruiser.
- "10 Torpedo Boat Destroyers.
- "20 Torpedo Boats (of the Coastal Destroyer type).
- "18 Submarines.

"This year again there has been some delay in the completion of contract-built ships, owing to labor disputes between employers and their men in the private shipbuilding yards. A continuance of this delay may involve a modification in the numbers of ships given above."

The seven battleships to which Lord Tweedmouth makes reference as being under construction on April 1, are:—

The *St. Vincent*; authorized 1907; 19,250 tons; laid down December 30, 1907, at Portsmouth Dockyard.

The *Cellingwood*; authorized 1907; 19,250 tons; laid down February 3, 1908, at Devonport Dockyard.

The *Rodney*; authorized 1907; 19,250 tons; contract let late in 1907 to Vickers, Sons, and Maxin, and just being laid down at their Barrow yards.

The *Superb*; authorized 1906; 18,600 tons; launched November 7, 1907, at the Elswick yards of Armstrong, Whitworth and Co.

The *Bellerophon*; authorized 1906; launched July 27, 1907, at Portsmouth Dockyard.

The *Temeraire*; authorized 1906; launched August 24, 1907, at Devonport Dockyard.

The *Agamemnon* (sister to the *Lord Nelson*); authorized 1904; launched June 23, 1906, at the Beardmore yards, Glasgow, where she is now completing.

The four armored cruisers which Lord Tweedmouth says will be under construction on April 1, are:—

The *Defence*; 14,600 tons; launched in April, 1907, and now completing at Pembroke Dockyard.

The *Invincible*; 17,250 tons; launched March 16, 1907, at the Armstrong yards at Elswick.

The *Indomitable*; 17,250 tons; building at the Fairfield Company's yards.

The *Inflexible*; 17,250 tons; building at the Clydebank yards of J. Brown and Co.

The unarmored cruiser to which Lord Tweedmouth refers as building and not to be completed before April 1, is the *Boadicea*, which was laid down at Pembroke Dockyard on July 1, 1907.

The ten destroyers mentioned by him in the same connection are the following:—

1905-06 Program.—The *Swift*, building at Cammell's; the *Afridi*, which is building at Armstrong's; and the *Ghurka*, which is completing at Hawthorn's, having already had her trials.

1906-07 Program.—The *Amazon*, building at Chiswick; and the *Saracen*, building at Armstrong's.

1907-08 Program.—The five large destroyers for

which contracts have just been let—one to Palmer and Co., one to J. S. White and Co., one to Denny Brothers, one to Thornycroft, and one to Hawthorn, Leslie and Co.

The past building programs of the government have been admirable; but it is not with the past, but rather with the future, that we are now dealing, and the failure of the British Cabinet to ensure the absolute maintenance of the two-power standard is disappointing, to say the least. In holding down the Estimates of the Admiralty, the Cabinet seems to have gone on the assumption that the programs of foreign powers are mere "paper projects." It is true that France authorizes no new program of battleships under her 1908-09 estimates. But France, which was once the big bear that Germany now is to Great Britain, has been outstripped in number of units and total displacement of fighting ships by the United States, and is practically in process of disarmament through the indifference of the former Pelletan Ministry. Under Minister of Marine Thomson the French navy is to be added to, but this to be done through the completion of the many vessels authorized by previous programs that have either been delayed in construction, or else not laid down at all.

The French program is a continuation of the 1906 program. Although the vessels in that list number one hundred and eleven, only ninety-eight will really be in hand next year, including battleships, armored cruisers, destroyers, and submarines; protected cruisers have disappeared. Of the ninety-eight vessels on the French building list, six battleships belong to the *Danton* class of 1906, and four armored cruisers to the *Waldeck-Rousseau* class of 1900. Under the French program, two of the armored cruisers, twelve of the destroyers, and sixteen of the submarines are to be completed in 1908; work is to be continued during the year on the six battleships of the *Danton* class, the other two cruisers, ten destroyers, and thirty-five submarines; and there will be ten torpedo boats and five submarines laid down during the year.

It is not the building program of France that has bothered the British Admiralty; for, so far as new authorizations are concerned, the French battleship program is *nil*, nothing having been authorized this year in addition to the carrying forward of the six *Dantons* which were authorized two years ago, not all of which have been laid down. But our British estimates do show that the Admiralty has its eye upon the destroyer and submarine development of the French, who will have a very formidable mosquito fleet for North Sea operations when all of these small craft shall have been completed. Ger-

many, too, has been forging ahead seriously with torpedo destroyer development, with a continuous building policy of twelve new destroyers annually. The dozen destroyers authorized by the Reichstag to be built annually are uniform, and will form homogeneous flotillas at the rate of one flotilla annually. The reply of Great Britain to the torpedo development of both France and Germany is the provision in this year's estimates for six fast protected cruisers, sixteen torpedo boat destroyers and half a million pounds' worth of submarines. The Admiralty Statement of Lord Tweedmouth does not give the type or purpose of the six protected cruisers, but they are expected to be of substantially the same class as the *Boadicea*, which is completing at Pembroke for use as a fast scout with one of the destroyer flotillas. She displaces 3,300 tons, is armed with five 4-inch breech-loading guns, will have double bottoms to carry oil fuel, and will have a large bunker capacity.

A rather significant hint respecting the need of fast cruisers for use in the North Sea was given in Thursday's issue of the *United Service Gazette*, which said:—

"Our only defense against a threatened invasion of our eastern shores is the Home Fleet. . . . The Admiralty have recently been manifesting a considerable activity on the east coast and the probable result is that, if the necessary vessels can be found, there will in the near future be a large addition to the force of torpedo craft maintained in that quarter, and to the number of bases for those craft. Half measures such as these, however, are of little use. What we need to give us absolute protection against invasion is a force in the North Sea capable of dealing summarily and effectively with the force which our potential enemies maintain there, but, so far at least as the smaller craft are concerned, Mr. Wyndham went straight to the point when he said: 'We have not got them in sufficient numbers to make it safe for the fleet to hold its position in the North Sea.' A heavy battle squadron without an adequate screen of fast cruisers and destroyers is simply a tempting bait held out to an enterprising enemy."

This idea seems to have been in the mind of the Admiralty when they brought in their estimates for the six fast protected cruisers which are to operate with the destroyers, and also their provision for the building of sixteen new destroyers. This is a very substantial increase in destroyers. Last year's program included but five ocean-going destroyers; that of 1906-07 included only two ocean-going destroyers, the *Saracen* and *Amazon*; while the program of 1905-06 embraced only six destroyers, in addition to the other vessels authorized. This is a total of thirteen new destroyers authorized in the past

three years; while the 1908-09 Estimates call for sixteen destroyers, or three more than were embraced in the three previous sets of estimates.

But public opinion throughout England has almost lost sight of the meaning of all this, in its disappointment over the failure of the government at this session of Parliament to show its hand. The "Thunderer," in its issue of February 25—the day following the issuance of the Parliamentary Paper of Lord Tweedmouth,—quotes his declaration that "His Majesty's Government have every intention of maintaining the Standard of the British Navy which has hitherto been deemed necessary for the safeguarding of our National and Imperial interests." The "Times" then says:—

"This is the outstanding feature of Lord Tweedmouth's Statement. It will be noted that the declaration is made, not in the name of the Admiralty only, but in that of His Majesty's Government, and the country will assuredly hold the Government strictly to the prompt and ample redemption of this solemn pledge. There are, indeed, not wanting reasons why, in default of this pledge, the country should regard the Estimates with some suspicion and misgiving. We cannot doubt that the pledge quoted will be held by the country to debar the Government from refusing to honor the drafts made on it by the Admiralty for the purpose of 'safeguarding our National and Imperial interests.' We would add that the same pledge irrevocably commits the Government to Supplementary Estimates on a much larger scale should any contingency arise such as that which compelled Lord Goschen some years ago greatly to enlarge his original program of new construction. That such a contingency will almost certainly arise next year and in future years is admitted, albeit somewhat grudgingly, by Lord Tweedmouth. Should it arise earlier, the pledge must be redeemed without flinching."

The "Times" adds, subject to the above conditions, that, as Lord Tweedmouth says, the program "suffices for 1908-09." It then sums up by saying:—

"The most favorable verdict which the country can be expected to pronounce on such a programme is, 'Not guilty, but don't do it again,' with special stress laid on the latter clause of the sentence and many reserves in regard to the future."

British sentiment is perhaps best summed up in the leading editorial in yesterday's issue of "Engineering," which says, in part:—

"As a retrospect, the statement of the First Lord of the Admiralty on naval policy is quite satisfactory; but so far as prospects are concerned, it is quite disappointing. 'The nation wished to know definitely what the Govern-

ment proposed in view of the adoption by the Reichstag of the greatly increased German navy vote, and the certainty that four more 'capital' ships will be laid down by our rivals in the summer.

"We accept the view that what we must provide against is performance rather than promise, but the Reichstag decision is itself a performance which ought to have its counterpart in Parliament. It is true that we are told by Lord Tweedmouth that 'His Majesty's Government have every intention of maintaining the standard of the British Navy which has hitherto been deemed necessary for the safeguarding of our National and Imperial interests.'

"Rumors, received with credit in well-informed quarters, have already robbed this statement of pious 'intention' of much of its worth as an assurance to inspire confidence. Nor can it carry conviction to the Continental Powers—an equally important necessity of the situation. Wise or otherwise, we offered at The Hague Conference not to build one of the battleships arranged for last year provided other Powers followed the example. This delayed the laying down of the Vanguard, and may have created in the minds of foreign Powers the idea that we were anxious about the financial responsibilities of naval supremacy.

"Some foreign programs have been augmented with the idea of improving the position relatively to Britain. The only salutary antidote is vigorous action now,—not a repetition of intentions in mild apologetic phrase, which can only aggravate the uncertainty. Thanks to the liberal policy of former years, we are in a sound position at the present moment, alike as regards material, personnel, and the organization, ashore and afloat, which further contributes to the fighting efficiency of the Fleet. We are, therefore, not disposed to cavil at a period of watching and waiting, but it is prudent to ask whether this period is not being unnecessarily prolonged under the proposals put forward by the Government now, and whether there is justification for the reduction in the total naval expenditure, including loans under the Naval Works Acts, from thirty-nine odd millions to thirty-two odd millions now, as shown in our summary of the Estimates.

"One must not forget that while Estimates are drawn up in February, no actual progress is made until December, so that, unless an exceptional course is pursued in the summer, our period of watching and waiting will continue until December, 1909, so far as building operations are concerned. Any extraordinary vote in the absence of extraordinary cause would disturb friendly relations, which at present cannot be affected by provision in the yearly estimates for that normal preparation which is the best preventive of war.

"We are told that the program for the coming year— a battleship, a large armored cruiser, six protected cruisers, sixteen torpedo boat destroyers, and a number of submarine boats—'suffices for 1908-09,' and yet in the same sentence, doubt is suggested as to this by the phrase 'whether and to what extent it may be necessary to enlarge it next year, or in future years, must depend upon

the additions made to their naval force by foreign Powers.' This statement was quite unnecessary if it were to be read literally. It is not decisive enough to awake foreigners to our determination to maintain our sea-power. Of course, next year's and all programs must depend on the action of others, whose move demands counter-check. What is of more consequence is the question as to whether the additions made to their naval force by foreign Powers' does not necessitate action earlier than next year.

"Including the two 'capital' ships to be laid down in 1908-09, we should have at the end of 1910 fourteen modern ships, including two *Lord Nelsons*, four *Invincibles*, and eight *Dreadnoughts*, provided we succeed in completing each vessel in two years; but we have, so far, only built the *Dreadnought* in so short a time. The First Lord further states, 'This year, again, there has been some delay in the completion of contract-built ships owing to labor disputes,' and that 'a continuance of this delay may involve a modification in the number of ships' given out. If this means that the programme will be increased to have something in hand against possible delays, then the idea is commendable; but we fear that the context suggests that it means more work for the dockyards and less for the contractors—an incidental point which restive workers might note. Unchecked by fortuitous circumstances, we shall have fourteen 'capital' ships by the end of 1910. Then Germany will have five, Japan five, and America four. Thus all is well until 1910. But after?

"This summer Germany will lay down four 'capital' ships,' three of them battleships of a reputed displacement of 21,000 tons, America two, and Japan two or three, Italy four, while Russia will come to a decision soon on the alternative Government schemes under consideration. The consequence is that by the end of 1911 Germany will have nine 'capital' ships of the new type, France four, America six, Japan eight, Italy four, and Russia probably four. To maintain the two-power standard in these new 'capital' ships, we require an addition to the fourteen provided for.

"Conscientious supporters of the progressive reforms of the Admiralty must regard with some disappointment the putting off for another year of the laying down of the ships required to thus make our two-power standard absolutely safe in 1911. Two more battleships this year, even although the expenditure were arranged to give three years instead of two years for construction, would have made a world of difference alike in British and foreign opinion. We recognize that it is necessary to see your opponent's hand in order to go one better; but this may be carried too far.

"Naval construction is a progressive science; but the advance is along well-exposed lines. As no ships of this year's program will be laid down until December, or, perhaps, January next,—only about 8 per cent of their total cost is to be spent before March, 1909,—there is sufficient time to discover the main features of design of new foreign ships, if our naval representatives at foreign courts are as courteously treated as are foreign naval attachés in this country.

"Here, information is regarded as secret only where British ratepayers are concerned. The Navy Estimates, for instance, do not give the armament of the cruisers of the *Invincible* class, laid down two years ago, though the vessels will shortly go on trial, and although the particulars are correctly given in every foreign naval text-book. Our naval intelligence department is equally efficient with all others at the Admiralty, so that the delay in laying down the two extra ships desiderated—making four, instead of two, for the coming financial year—cannot be due altogether to waiting to see the opponent's hand. . . .

"It is true that we have provided in this year's program six protected cruisers, in addition to the battleship at Portsmouth and the armored cruiser at Devonport, and that five of these cruisers are to be given out to contract; the other is to be laid down at Pembroke. In addition, too, there will be sixteen torpedo boat destroyers. All of these vessels are greatly needed, and therefore the ordering of them affords no excuse for lessening the number of battleships to be laid down. The same remark applies to the submarine boats, and here incidentally a protest should be entered against the practice of determining the needs of the Navy in any type of craft by a monetary limit. As many submarines as can be bought for £500,000 are to be built by contract. This seems the decision of an economical Treasury rather than that of a skilled strategist. Moreover, it is said the design of the six cruisers is similarly to be limited; they are to cost not more than £400,000; but under the heading of 'extras,' even a Board of Admiralty can find shelter for obeying their naval instincts rather than the naval dictates of Government."

Yesterday's issue of "The Engineer," in its leading editorial on the program, says, in part:—

"That Naval Estimates which show a still further reduction on the shipbuilding expenditure should be received with something like a sigh of relief is a curious commentary on affairs as they now are.

"Yet it is so, since the well-known malleability of the present Government, and the equally well-known anti-Navy attitude of the Socialist leaders, led people to expect something worse than has actually occurred.

"Speaking broadly, the shipbuilding program is exactly half what it should have been with regard to our actual needs, or the maintenance of the two-power standard; but, on the other hand, its proportions mark a very reasonable excellency.

"Whatever may be written academically about *Dreadnoughts* as 'capital ships,' whatever the ultimate value of battleships in deciding issues may be, no honest student of affairs will question that, in the event of hostilities with Germany, the North Sea would be impossible to battleships till legions of destroyers and torpedo boats had been cleared away.

"No one acquainted with the conditions of modern naval warfare has much doubt as to the actual result of

an attack by several destroyers on a battleship. The ship might survive one attack, or even two; but, given enough destroyers, their success is assured. No 12-pounder is likely to stop a destroyer from firing her torpedoes; it is a moot point whether larger projectiles can be effective against a boat whose mere way with engines totally disabled will bring her into torpedo range from the two thousand yards at which, with luck, she may be sighted. Dismal indeed are the prospects of the big ship if she be found. One means of safety lies in not being found; but that safety can hardly be come by in narrow seas. Imperative, therefore, is it to have a large force of destroyers, large enough and numerous enough to meet and annihilate any hostile force of the same type. Thus, and only thus, can the big ship survive. Only the most capacious critics will, therefore, fall foul of the Admiralty for adopting the proportion of sixteen destroyers to a single *Dreadnought*. Nor can any serious objection be taken to the provision of six swift protected cruisers. True, the Admiralty has in the past explained with considerable emphasis that protected cruisers are extinct in utility, but that has never been our view. It has always been obvious that the gauge of a cruiser's utility is not merely her fighting value, but her general usefulness. As a scout, as a linking ship, as a destroyer of destroyers, for work in estuaries, and such like services, the protected cruiser is not merely useful, but essential.

"Big ships can neither be spared nor risked for scores of eventualities of naval war. Somewhat tardily, the Admiralty has recognized this truth, from which it had been led away, perhaps, by the very dogmatic statements of those who deal with naval warfare from the purely academical standpoint, forgetting that all war must embrace a number of unexpected situations. So many are these situations that only the shallow thinker and the theoretical dogmatist can assert that any type of ship can have 'no use.' Fighting value, indeed, she may lack; but, as we have indicated, fighting value and utility are not necessarily one and the same thing.

"The provision of an *Inflexible* will be held doubtful policy by some, but here again we consider that the Sea Lords are right. Rightly or wrongly, the fashion is now to regard Germany as the possible rival, just as once we regarded France, and, at a later date, Russia. It was the Russian *Kurik* which produced our *Powerfuls*, the *Rossia* which led to our *Drakes*. We initiated *Inflexibles*, it is true. In doing so, perhaps, we committed an error. Nothing in the German Navy or in any other fleet called for such vessels. That, however, is a matter of past history.

"The essential fact is that Germany replied; and we are compelled to meet the reply with still further replies. Therefore, regarding the new shipbuilding program, on the question of whether the best is proposed for the sum to be expended, we are disposed to express unstinted admiration for the Admiralty policy. We consider the proportion adopted altogether admirable. Having said this, however, we have said all that we possibly can say in favor of the new programme.

"In our opinion it is exactly half what our national safety or national insurance demands. The wishes of Messrs. Murray Macdonald, Keir Hardie, Chiozza Money, and others who have been identified with an agitation against naval expenditure, may, for all we know, be factors of tremendous moment in the arena of party politics. So may scores of other Socialistic aims and ideals. But, be that as it may, we cannot see in these propositions anything even indirectly connected with problems of naval defence. We are unable to trace any knowledge of, or interest in, navy problems in any of the politicians prominent in what is known as the 'Little Navy' agitation. Some peculiar kind of military interest was, indeed evinced by several of them during the South African War,—but this interest hardly tended to the success of our arms! We feel, therefore,—and we think our readers will agree,—that the action of those Government supporters who have been instrumental in reducing naval expenditure cannot be accepted as in any way directed to secure naval efficiency.

"Intentionally or otherwise, therefore, this influence must be against naval efficiency. This reasoning is, of course, quite outside any political question involved,—we refuse to admit that a force like the Navy can be viewed politically. We regard it as our sole bulwark against invasion, the sole guarantee of all our business undertakings, of our entire existence. Holding this view, we cannot but subscribe to the two-standard theory,—that safety lies in building equal to the next two strongest navies combined, with a margin for contingencies.

"In the Naval Estimates for 1908-09 the two-power standard, which has been wearing thin for some time, is thrown definitely overboard. Verbal declarations to the contrary by Lord Tweedmouth are mere wind. With Germany alone building five *Dreadnoughts* for her 1908-09 program, the most sincere apologist cannot pretend that our solitary battleship represents even a nominal adherence to the two-power standard.

"In view of all that our naval superiority entails, we cannot disguise the fact that we regard this situation with the gravest alarm. Nor do we see how it is able to do other than create the most serious feelings of insecurity in all commercial undertakings. To all other business risks will now be added the grave risk of war. Trade seems bound to suffer unless a truly remarkable optimism prevails, and an affected trade will certainly increase unemployment. This last, indeed, is the one bright spot in a picture otherwise black. If it be brought home to the working man that a reduced Navy means reduced employment, he may yet have sense to turn upon that Socialistic element which is mainly responsible for our dwindling Navy.

"The Navy League as a factor in the situation can hardly count, since its condonation of the existing Government policy last summer. The newly formed Imperial Maritime League may accomplish something, but that greatly depends upon its roll of membership. It has, at least, the only watchword suitable for the present situation: "To oppose naval reductions without regard to any

other considerations whatever, and to combat them by every possible means." Without, we hope, exhibiting any political bias whatever, we may say that we can conceive of no other doctrine to which any Englishman with the welfare of his country at heart can subscribe."

Allow me to quote from another source. 'To-day's issue of the "Army and Navy Gazette" says, in part:—

"The Navy Estimates were on Monday night laid on the table of the House, and they prove to be, as we anticipated, sufficient for the present—no more and no less. Whether they will even prove to be sufficient for a twelve-month remains to be seen. It depends not on what the British Government has done, but on what other Governments may do. . . . They are admittedly the estimates of the Cabinet and not the estimates of the Admiralty, which has only accepted them lest worse follow. . . . Excellent as their intentions are, no doubt, and well supported by their capable naval advisers, it is only too obvious that the financial exigencies of the Chancellor of the Exchequer and the economical prepossessions of the larger part of the Government's supporters are factors of overwhelming strength in the counsels of the Cabinet. We recall the words of Lord George Hamilton when the Naval Defense Act was passed, that 'Hereafter the expenditure upon the Navy was to be regulated by a standard, and was not to be regulated by the personal vagaries of those in office, or by casual financial exigencies.' Can anyone seriously contend that the policy thus indicated is being consistently followed now?"

THE LAUNCHING OF THE NASSAU

BERLIN, March 7, 1908.

The first of the great German all-big-gun ships—the *Nassau*—was successfully launched to-day at the Imperial Dockyard at Wilhelmshaven. Not only in armament, but in arrangement of turrets and guns, the *Nassau* is to be the most powerful ship that has yet taken the water in any part of the world. The German Government is maintaining the greatest secrecy on this point, but there is now not the least doubt—unless reliable sources of information are entirely misinformed—that the *Nassau* will have a stronger all-big-gun battery than either the improved British *Dreadnoughts* of the *St. Vincent* class, the French *Dantons*, the American *Delawares*, the Japanese *Akis*, or even the proposed Italian ironclads.

American naval students will, perhaps, find some difficulty in identifying the *Nassau* in their "Brassey" or "Jane," or even in the official German Navy List. It is the *Ersatz Bayern*, about which so much has been said and written. *Ersatz Bayern* was not intended as the name of

the ship when those two words were incorporated into the Navy List. Perhaps the nearest English equivalent for the German word "Ersatz" is "substitute." *Ersatz Bayern* merely means "Substitute for the *Bayern*." Germany has a continuous building policy. Until the adoption of the present Naval Estimates, the age limit of German battleships was twenty-five years. This has been reduced to twenty years. Every time a German battleship attains that age, another is to be laid down in her place. There is already an old *Bayern*, and the *Nassau* is the ship that takes the place of this obsolete vessel. Until a name had been chosen for the substitute for the *Bayern*, this new vessel had to be designated some way in official naval nomenclature, and *Ersatz Bayern* was regarded as a better temporary method of identification than the use of "A" or "B" in speaking of the ship. But, as soon as the new vessel was officially christened, she shook off her old designation, and from now on she will be known as the *Nassau*. What are now denominated as the *Ersatz Sachsen*, the *Ersatz Baden*, and the *Ersatz Württemberg*, which are to supplant the old *Sachsen*, *Baden*, and *Württemberg*, will also receive other names when christened.

The *Nassau* was christened by the Grand Duchess of Baden, in the presence of a great gathering of officials, headed by the Emperor, Prince Henry of Prussia, Prince Rupprecht of Bavaria, and Prince Henry of the Netherlands. The keel of the *Nassau* was laid in July, 1906, and she is the pioneer of the four ships of this class, representing the Fatherland's reply to the British *Dreadnought*. The building of the *Nassau* has taken considerably longer than usual. This fact is attributable partly to the burning of the building slip at Wilhelmshaven; but principally to the entirely novel design. Moreover, when the vessel left the stocks she was in a very advanced condition, and it is expected that the summer of 1909 will see her in commission. The work will be pushed rapidly, and she will be ready substantially at the date when Germany first contemplated having this vessel take the sea, in spite of the vigorous denials that were for a long while made as to the actual construction of the ship.

Nothing but steel has been used in the construction of the *Nassau*. The reciprocating engines are in three sections, and there are triple screws. A speed of 19 knots is hoped for by the Government. Her armor will be extraordinarily complete, and it is a noticeable fact that the belt, 12 inches thick amidships, will extend five or six feet clear above the water-line. From this it would appear that the German Admiralty has not been oblivious to the lessons of the conflict in the Far East, which clearly

demonstrated the danger of a belt submerged at anything over normal displacement.

Reams have been written and all sorts of theories advanced in respect to the probable armament of the *Nassau*, but it is now practically certain that she will carry sixteen 11-inch guns of 50 calibre, besides a large number of rapid-fire weapons for repelling torpedo attack. It is understood that the main battery will be arranged in eight double turrets,—one forward and one aft, each flanked to port and starboard by two others, the remaining two turrets being placed amidships on an axial line with those at the bow and stern. This disposition will allow of twelve guns being brought to bear on either broadside, and six ahead or astern.

It is quite possible, however, that a heavier stern fire may be realized by elevating one of the turrets amidships, so as to enable its two guns to fire over the stern turret and thus bringing eight guns to bear.

An alternative arrangement has been mentioned, whereby the two middle turrets would be placed to port and starboard respectively, but farther from the axial line than the forward flanking turrets. This would mean a broadside fire of only ten guns, though ten could be brought into action ahead and ten astern. The adoption of the first arrangement is, however, almost certain.

The total cost of the *Nassau* is approximated at \$9,187,500. Of this, \$5,568,000 goes for the actual construction, armor, and equipment; \$3,375,000 for the guns; and \$247,000 for the torpedo armament. In this sum are included the expenses which will be incurred in connection with the trial trips. The battleship will carry eight hundred and sixty men, or one hundred and thirty more than any previous German warship, and there will be twenty-seven executive and engineer officers. The *Nassau* having now been launched, the building slip will be immediately prepared for one of the battleships of this year's program—the *Ersatz Oldenburg*, the *Ersatz Siegfried*, or the *Ersatz Beowulf*.

The huge armored cruiser designated "E," in course of construction at the Kiel Imperial Dockyard, will take the water on April 11. Originally set for the end of March, the launching has been postponed until the former date, owing to delay in the delivery of several large castings. Very few details of an authentic character are known about this vessel, but it is believed that she will embody most of the essential details of the British *Invincible* type, except that her armament will consist of twelve 11-inch guns. A speed of 25 knots an hour is

projected, and turbines have been mentioned in connection with this cruiser; but in view of the German Government's known coyness in regard to this method of propulsion, it is likely that reciprocating machinery will be installed.

It is instructive to note that the recent speed trials of the new German warships have shown a considerable increase over the contract speeds. The battleship *Pommern*, 13,040 tons, over a measured mile, reached a speed of 19.21 knots, whereas the contract speed was 18 knots an hour. The turbine, protected cruiser *Stettin* has also exceeded her contract speed; while the armored cruiser *Gneisenau* did 23.8 knots on her trial trip, an increase of 1.3 knots over the contract.

The armored cruiser *Scharnhorst*, which ran ashore near Kiel on January 16, while engaged in target practice, left the dockyard hands again a fortnight ago, apparently in as good condition as originally. The repairs have been executed with commendable promptitude, having extended over barely five weeks, which, in view of the serious damage she sustained,—a hole 90 feet long was torn in the hull,—is something of a record. Pessimistic reports circulated in the national and foreign press after the accident, and it was generally believed that the cruiser would be off the active list for at least a year.

It has frequently been argued by the opponents of German naval expansion that to conduct such expansion with the ultimate object of placing the fleet on an equality with Britain's navy simply means playing a losing game, in the face of the British nation's unanimous determination to maintain their maritime supremacy at all costs. But this argument ignores the occurrence of possible eventualities. England at present has massed her entire battlefleet—with the exception of the Mediterranean squadron—in or adjacent to the North Sea, and it cannot be denied that the formidable array of warships so close at hand seemingly indicates an overwhelming preponderance of British naval strength. Whether the trend of events in distant parts of the world will justify the maintenance by England of her present concentration policy remains to be seen. If, for example, her interests were threatened, in the Far East or at some other distant point, by a formidable naval power, the situation calling for the despatch of a powerful squadron, the status quo could not be maintained. Professor Schiemann dilates upon this possibility in his weekly survey of foreign affairs in the "Kreuz Zeitung." He deals in the spirit of General Keim with the vociferous demands of

the British Press for the continuance of Great Britain's naval supremacy. "We do not regard this in too tragic a light," he says, "as we know very well that England will not be able to escape the necessity of sending a portion of her navy back to the East Asiatic stations." While this assertion may savor somewhat of dogmatism, it undoubtedly represents what many leading German statesmen anticipate, and may serve to throw an instructive light on the apparently hopeless race in which Germany is engaged,—the race for a prize of inestimable value. No nation realizes better than this the fundamental truth of Sir Walter Raleigh's famous pronouncement: "Whosoever commands the sea commands the trade, and whosoever commands the trade of the world commands the riches of the world, and consequently the world itself." With this concrete fact always before their eyes, the Germans are enthusiastically responding to the slogan of the Navy League,—*"Mehr Schiffe."*—and the present Navy Bill by no means represents the sum total of national ambition for sea power.

The Naval Estimates published in England last week have evoked little comment in the press here. The rumor regarding the three Brazilian battleships building in England, and believed actually to represent future British units, has not yet been confirmed; but it is significant that mention is made in the Estimates of a possible supplementary vote being asked for later in the year. No doubt we shall learn the truth of the matter before the present session of the British parliament comes to an end.

H. C. B.

WIRELESS TELEGRAPHY DEVELOPMENTS

PARIS, March 1, 1908.

There are many phases of the American battleship voyage to the Pacific Ocean that are proving interesting to the French authorities, but one of the most interesting has been the effective use that has been made of the wireless telegraphic apparatus during the trip. This is due to the success with which that apparatus has been used by the sixteen battleships under the command of Rear Admiral Evans, and especially to the fact that this subject is receiving a great deal of attention now at the hands of our French ship and station commanders, and has been the cause of a series of experiments from which much is anticipated.

Our nearest and most important over-sea interest happens just now to be Morocco. For some months French warships have been stationed off the Moroccan Coast, at Casa Blanca, as well as along the Mediterranean coast of Morocco and Algiers, and it is regarded as exceedingly important to be able to communicate with them direct by wireless from wireless stations along the French coast. Some months ago the French Ministry of Marine decided upon an elaborate series of experiments in the Mediterranean under the auspices of Admiral Gaspard. In one series of these experiments the warships *Gaulois*, *Jauréguiberry*, *République*, and *Jules Ferry* were employed; they began with a test of the apparatus and studies in the best way of fixing the antennae, as well as consideration of the lengths of mast to be employed. Messages were sent between Toulon, Villefranche, and from as far away as Algiers.

Some very remarkable feats have been accomplished, we all know, in both the British and the American navies. The British station at Poldhu has an ultra potent range owned by the Marconi Company, and it has been able to communicate with trans-Atlantic vessels nine hundred and fifty miles distant. One of the latest feats of the French naval wireless experiments has been the establishment of direct communication between a battleship sailing from Algiers for Ajaccio, with the station at the latter place, and also with the wireless operator at Raz de Sein. The latter is on the Brittany coast of Finistère, not far from the dockyard at Brest. West of Brest is Point St. Mathieu, and just south of it is another peninsula which projects into the Atlantic. Between the Raz de Sein and the ship with which communication was established in the Mediterranean the distance is about twelve hundred and fifty miles, and the message passed from the communicating vessel across the entire north and south length of France to the Brittany Coast. The success of this was such that an attempt will now be made to communicate directly from Agde, or some other place on the coast of Provence, with the French warships at Casa Blanca.

One important feature of the experiments involves the effort to communicate between warships without fear of detection. This is extremely important from a strictly naval standpoint. While wireless possesses many advantages, one of its great disadvantages in a naval campaign would be the fact that any vessel within range might pick up important messages and thus become acquainted with the plans of a belligerent, unless the code is secret; and even then unintelligible messages, while not under-

stood, would establish notice of the presence of the enemy, unless the despatches could be flashed without detection.

This phase of the problem is no way better pictured than in the valuable work by Captain Vladimir Semenov of the Russian Navy on the naval battle of Tsushima. Semenov was on board Admiral Rodjestvensky's flagship, the *Svaroff*, and took notes during the battle. In his vivid description of the combat, which has been read by every live ordnance officer in every army and navy of the world, Captain Semenov gives a graphic picture of the opening of the combat. He tells of the progress of the Russian fleet and the hopes and fears of its personnel, of the manner in which the Russians refrained from the use of wireless through fear that their presence would be detected by the scouts of Togo's fleet. He tells of the manner in which the messages from one Japanese vessel to another were picked up by the Russian and Japanese ships, thus establishing the presence of the latter. The Japanese vessels were out of sight; their scouts were covering the Sea of Japan in quest of the enemy. Then some of the Japanese vessels hove into view of the Russians, discovered them, and much clicking followed in connection with the immediate notification to Togo of the discovery of the whereabouts of the enemy. All of this was heard on board the Russian vessels. Just how this will be obviated is not known, but the French Ministry is understood to be seriously endeavoring to solve the problem.

French naval officers are greatly impressed with the manner in which wireless facilities were used by the American battleship fleet on its way to Magdalena Bay. Full reports on that phase of the journey have not been received; but the newspapers of the world carried knowledge of the fact, on February 18, that a wireless despatch had reached Lima, Peru, from the battleship fleet under Rear Admiral Evans, saying that at that hour the vessels were three hundred and eighty miles from Callao. The distance from Montevideo to Punta Arenas, about thirteen hundred and twelve nautical miles, is approximately the distance from the French communicating vessel in the Mediterranean to Raz de Sein. It is about equal to the distance from Colon to New Orleans. From New York to Havana is only twelve hundred and thirty miles, and the distance from Pensacola to the west coast of Central America—the Pacific side of Guatemala, San Salvador, Nicaragua, Costa Rica, and Panama—about the same.

With the proper solution of certain minor problems, there should be no difficulty for vessels steaming upon the west coast of Central America to communicate by wire-

less with Pensacola and Havana, and there is no reason why our French Ministry of Marine should not be able to keep in constant wireless touch with stations on the African Coast. Remarkable records in wireless transmission were established in the United States Navy in October, 1905, when the station at the Washington Navy Yard, according to information given wide publicity at the time, followed the despatches which were being exchanged between the armored cruiser *West Virginia* and the stations at Dry Tortugas and Key West. The first message then picked up at Washington was one from the *West Virginia*, which had President Roosevelt aboard, to the armored cruisers *Colorado* and *Pennsylvania*, then lying off Key West. The total distance of the circuit was about ten hundred and fifty miles.

Another notable wireless achievement was that of the British navy several months ago, when the staff of the *Cornwallis*, then on her way home to England from Gibraltar, kept in touch with that port during the whole passage of nine hundred miles, and also obtained communication with the station at Scilly Islands, two hundred miles away.

Valdemar Poulsen has also been attracting attention with his wireless telephone experiments by recently establishing wireless connection between Berlin and Copenhagen, a distance of about two hundred and fifty miles. In this work he succeeded in communicating the music

of a phonograph by wireless. The phonograph was attached with a microphone at Weissensee, in the vicinity of Berlin, and the tones were heard by Poulsen's station, seven miles from Copenhagen. The Poulsen system has been tested recently in the portable wireless stations of the German army. The experiments have not yet reached the point where conversation can be carried on for distances greater than a dozen or more miles; but wireless telephony is yet in its infancy, attention having been devoted principally, up to the present time, to wireless telegraphy.

There have been wireless developments of interest recently in other side lines. According to the "Eclair," M. Edouard Branly, one of our distinguished physicists, claims to have discovered how to control the direction of moving torpedoes by wireless waves, and to have found a way of applying the same principles to the explosion of military mines. H. Grindell Matthews, a young English inventor, has been engaged in a series of interesting wireless experiments at Boxhill. Carrying them out on the top of the Kursall, he claims to have discovered a method of wireless transmission by which torpedoes can be controlled, steered, and exploded at a distance of several miles. If these experiments result in practical demonstrations of the utility of the wireless explosion of torpedoes, that branch of warfare may be revolutionized.

THE CRUISE TO THE PACIFIC

BY ENGLE WOOD, U.S.N.—ON BOARD THE FLAGSHIP *CONNECTICUT*

AT RIO DE JANEIRO

The Divisions are again under way and standing out to sea. The Presidential Review is over, the final salutes have been exchanged; the cheering and the *vivas*, the waving flags, have all been left behind, and the Fleet, which for the last ten days has been enjoying the hospitality of the Brazilian people, is leaving the harbor of Rio en route to the Magellan Straits. Now that the strenuous social life is over for a time, now that neither banquet, nor excursion, nor *dejeuner officiel* looms up to distract us, now that we have come back to the orderly routine of ship life with its attendant atmosphere of quiet and of calm, we can look back upon our experiences in Rio and review our impressions of them.

Our visit was from every point of view eminently satisfactory. Diplomatically considered, its success was significant; and as a pleasant break in the cruise, with the interest and relaxation of shore liberty, it left little or nothing to be desired. That we were welcome was as evident as was our presence in the Bay. To the citizens of Rio our advent was something more than a matter of ordinary importance; to the nation in general, an occasion calling for something more than merely formal courtesies; with the result that the various departments of state and municipal government vied with each other in giving us a reception that was an enthusiastic as it was dignified, and as spontaneous as it was universal. To say that the welcome was in every way befitting the occa-

sion, and that it did honor to our hosts in more than one way, is a very conservative judgment of it. It was elaborate without being overdone. Its various functions were admirably managed and beautifully arranged, and its courtesies were shown with a graciousness and tact that left behind them the pleasantest of impressions. The welcome accorded to us was genuine, whole hearted, and manifestly unforced. It was confined, too, to no particular class or party, and was shared in by the people as generously and as sincerely as by the government officials themselves. It was marked by a public sentiment of regard for the United States that grew in spirit with the days of our sojourn, and was unmarred by a single serious incident of an unpleasant or discordant nature. The Fleet is leaving Rio with the most agreeable recollections of its visit, and with a keen appreciation of the truly splendid way in which it was entertained by the great southern Republic.

When we entered the harbor on the afternoon of January 13, in column, natural order, with perfect interval between ships, tens of thousands lined the water front and crowded every coign of vantage in Rio and its environs. Under the clearest of blue skies and in a blaze of sunlight, each division took up its anchorage, its halyards astream with signal flags, its funnels lazily smoking, its anchors eager as hounds in leash for the order to "Let go." Tugs, launches, and excursion steamers, packed with cheering crowds, hovered around; whistles shrieked and tooted; bands played; and the inevitable press-boat with its reporters and photographers was as persistently in evidence as it would have been under the same circumstances in Hampton Roads or the North River.

We came to anchor about four o'clock, and were soon busy getting cleared and in trim for coaling ship. The Chief of Staff was rejoiced to find all his expected colliers waiting and ready, and soon each was under way for the particular ship it was scheduled to coal next morning. Meanwhile the Officer of the Deck was kept busy with a stream of officials and visitors. First came the Health Officer and some other harbor officials; then a trim looking Brazilian naval officer, on business with the staff; then a flag officer representing the Brazilian admiral; then our own admirals, and sandwiched between, a dapper little lieutenant from the German cruiser *Bremen* on a boarding call. The bugler and sideboys were working overtime, when a diversion as sudden as it was unexpected put an end to the ceremonies. A tropical thunderstorm swept over the Bay, bearing all the earmarks of a good old-fashioned cloudburst, and for three-

quarters of an hour the decks fairly streamed under the downpour. Then, suddenly as it came, the rain ceased, the setting sun lit up the mist-capped mountains, and the lights of the city began to twinkle and brighten in the gathering dusk. Soon the buglers began to sound off "Colors" and the strains of the "Star Spangled Banner," as the flags were hauled down came over the quiet waters.

Next day the first liberty parties went ashore. Each ship not coaling sent a big contingent, and the scene along the Pharoux Quay, where the boats landed, was picturesque in the extreme. This quay is on the front of the Fifteenth of September Square, and crowds of on-lookers from the city lined it to watch the men and officers of the Fleet come ashore. Close by, a Bureau of Information for the sailors had been established by the American colony in Rio in a fine new building. Here, under the able direction of Mr. Clark, the Secretary of the Y. M. C. A., and an obliging staff of assistants, all information regarding the city and its environs was furnished; excursions were arranged, money changed, stamps and postal cards sold at normal prices, cab and trolley fares quoted, and every possible courtesy extended to the crowds which besieged it daily. This Bureau, ably and systematically managed as it was, contributed more than any other influence to make the shore liberty of the men attractive; and too much praise cannot be given to the committee of American citizens that planned and organized it.

As comparatively few among us had ever been so far south before, and but fewer still in recent years, our conception of Rio did but scant justice to its beauty and magnificence. A thoroughly modern capital, superbly situated, with fine streets, clean and well kept, splendid public buildings, parks that would do honor to many a European capital, and an air of alert industry that one seldom thinks of associating with the South American temperament, Rio is to-day a thoroughly up-to-date metropolis. To most of us its progressiveness was almost a revelation. We expected to find a big city, and a fine city, but were entirely unprepared for the enterprise, the public spirit, and the go-aheadness that was everywhere manifest. A scheme of Harbor works is nearing completion, that will rival those of Buenos Ayres; the waterfront along the Bay has been converted into one of the most beautiful driveways on the continent; the new Monroe Palace, the Municipal Theatre, and the National Library are monuments worthy of any people; and had the Avenida Central—that wonderful Avenue cut through the heart of the city and in construction and design a marvel of archi-

tectural beauty—been built in any of our large cities at home, the work would have been paraded in the eyes of the world as the high water mark of municipal achievement.

Though modern in all essentials, Rio has the atmosphere of southern Europe. Quaint streets, narrow and winding, recall the old days of the Empire. Here we run across a vista that brings us back to Genoa; there a winding stone-flagged lane that is redolent of Lisbon. Its churches, solid, massive and impressive, have an old world air that suggests the Corso and the Piazza Colonna; and its entire color effect in the pale tropic sunshine is Latin unalloyed.

The shops, on the whole, are disappointing, the department store being still in the experimental stage. As the expense of living is especially high, prices are proportionally steep, and in the case of many luxuries almost prohibitive. The Portuguese currency in use seems to accentuate this. A five dollar gold piece is worth, at the present rate of exchange, about sixteen thousand reis, with the result that the cost of a two penny loaf in Brazilian coin sounds like a small fortune. Our men got their money changed at the Bureau of Information, and after that trusted entirely to the honesty of those with whom they dealt. Their method was primitive, but practical for all that. When they entered a store and bought some souvenir, they put a handful of milreis on the counter and let the trader select the necessary amount from the pile. "They'll cheat you anyway if they want to, and if they cheat you this way they must do it to your face," was the philosophy used in the transaction. But there was no complaint of cheating or overcharging. The men were to be seen in the shops, and cafes, and restaurants, enjoying themselves heartily and on the best of terms with everybody. They got all the spare saddle horses available, and rode them, as the circus man spoke French, "without fear and without reproach." They were the most popular and consistent supporters of the hackmen. Every street car had its quota of them. You ran across groups of them in the parks and show places, and during our stay the various moving picture exhibitors grew fat on their patronage. Good-natured, easily amused, and well behaved, they went everywhere, saw everything, owned the city, and had the time of their lives. While the sailors were seeing Rio, their officers, especially those of command rank, were busy with the program of entertainments that had been arranged in their honor.

On the Monday of our arrival the Admirals, with the

exception of the Commander-in-Chief, who was laid up with a rheumatic attack, the Captains, and the various staffs went up to Petropolis, the picturesque summer capital of the Republic, and were presented to President Penna at the Rio Negra Palace, by Mr. Dudley, our Ambassador. The reception was delightfully cordial in every way, and the President's speech of welcome was as sincere as it was happy. In the evening a banquet was given them by Ambassador and Mrs. Dudley. On the 16th an excursion to the summit of Corcovado, followed by an elaborate lunch, was tendered to the Fleet by the Brazilian Navy, Admiral Alexandro de Alencar, the Minister of Marine, being host on the occasion. Corcovado is a mountain peak almost three thousand feet high, which stands like a sentinel above the city and from the top of which one of the most entrancing views in America is obtainable. It is ascended by a funicular railroad, which climbs the grade at an easy pace, permitting the sightseer to take in every detail of the wonderful panorama that gradually unfolds itself beneath. This railroad, run by an American firm, was working to its fullest capacity during our visit, and more than ten thousand of the men made the excursion.

On Wednesday, the 15th, another state function for the Admirals and Commanders took place in Petropolis, when President Penna gave a luncheon in their honor; and that same afternoon they and the other officers were entertained at a garden party given by our Ambassador in the grounds of the Embassy. This was largely attended by Rio and Petropolis society, by the Cabinet and diplomatic body, and by all the ranking officers of the naval and military establishment.

But to enumerate at length the public and private affairs arranged for us would be but to repeat the details of those already mentioned. Every day had its pleasant function; every night its banquet or its ball. On one evening it was a fete in the Park Fluminense by the American colony; on the next, a reception by the exclusive Diarist Club. On one afternoon, a picnic and lunch at the famous Botanic Gardens; on the next, an automobile ride to Iajuca and its environs.

One of the most significant and impressive features of the welcome was of a religious character. On the anniversary day of the city's foundation, the Monday before we left, Cardinal Arcoverde Cavalcanti, the Archbishop of Rio, had a special Mass of thanksgiving offered in the church of Mt. Carmel for the safe arrival of the Fleet at Rio. This was attended by a congregation of the men and officers that taxed the church to its fullest capacity.

The crowning feature of the whole reception was the State banquet given by the Minister of Foreign Affairs in the Monroe Palace. This splendid edifice, at the entrance to the Avenida Central, was erected to commemorate the Pan-American conference held in Rio about two years ago, and is one of the most imposing buildings in South America. There was something particularly fitting in the selection of this as the scene of the concluding function of our reception in Rio; and with the Fleet in the harbor illuminated in honor of the occasion, the whole affair assumed the character of an international *entente*. The banquet was as brilliant as it was impressive; the Brazilian officers, both naval and military, fraternized with ours; and the speeches of Baron Rio Branco, Admiral Maury, Admiral Thomas, and Ambassador Dudley were received with enthusiasm. It was a fitting climax to the long series of public and diplomatic courtesies extended to us by the Brazilians, and as an event will long be remembered by those whose good fortune it was to participate in it. On Tuesday afternoon Admiral Thomas's flagship, the *Minnesota*, gave a farewell reception in behalf of the Fleet to our hosts ashore, and the social side of our sojourn was at an end.

The next day, at noon, the President of the Republic paid his official visit to the Fleet. In his honor we dressed ship and manned the rails, and the ships fired a twenty-one gun salute as the presidential cortege passed down the line. On the conclusion of the ceremonies incident to his visit, he boarded his yacht and, taking a position down the Bay, reviewed the white column as it thundered a final salute in his honor and passed out of the harbor on its way to sea.

FROM RIO TO PUNTA ARENAS

The weather on our departure from Rio was tropical; this condition remained the same for a day or two, till the south winds began to temper it with mildness and eventually with chill sufficient to send us from white into our blue uniforms. We left Rio on the afternoon of Wednesday, January 22, and on the following Sunday morning the order for getting into blue was issued. The ships were in excellent condition, and with full bunkers no difficulty was anticipated in getting them to Punta Arenas on schedule time. The large mail that came aboard just before we left our anchorage kept everybody busy for a day or two, and the news in the papers afforded all sorts of topics for discussion. The Fleet steamed in column of divisions; the sea conditions were fairly good, and everything moved like clockwork.

The ships' drills went back into sea routine and the men responded with added spirit to their work. The guns' crews were kept in constant training, the ammunition details thoroughly exercised, and the various functions of collision drill, torpedo defense, and general quarters practiced incessantly.

We had rather heavy weather our first Sunday out of Rio, with a touch of fog to add to the unpleasantness; but our interest was excited by the expected visit of an Argentine squadron that was to meet and salute us en route. At two o'clock that afternoon the Admiral received by wireless intimation of the presence in our neighborhood of the Argentine ships. Messages were exchanged till the late afternoon, after which it became evident that it was the intention of the Argentines to come up with us next day. Early next morning Admiral Oviva's Division, consisting of the cruisers *San Martin*, *Pleyerredon*, *Gen. Belgrano*, and *Nuevo De Julio* came along at a twelve-knot gait in column, natural order, and, steaming to starboard of the flagship, dressed ship, cheered, and saluted, a courtesy which was acknowledged to the letter by the *Connecticut*. The Argentine ships were handled smartly, and in their war-colored suits looked exceedingly grim and business-like. The distance between ships was beautifully maintained, and the work of the division made a most favorable impression upon our fleet. As the Argentine ships drew off, messages were exchanged between the two commanders, till the Argentine Division disappeared. The Fleet, in column, natural order, reviewed the Argentine ships, and on the departure of the latter changed to the old formation of column by divisions. The weather now began to be quite cold.

The Admiral issued an important order on the 27th, placing the various ships in the Fleet on a basis of competition in the matter of fuel and oil consumption, and the good effects of the order were soon apparent in the marked decrease in the amount of coal used by the individual units. We struck a contrary current on the 28th and 29th, that cut down the day's run some thirty miles; and early on the morning of the 31st, Cape Virgins, at the entrance of the Straits of Magellan, was sighted on our starboard bow. The great Sarmiento Bank, which puts out to sea for miles, obliged the Fleet to make a long detour to port, so that we were not abeam of Cape Virgins, at the entrance to the Straits, till noon.

The entrance of the Straits here, and, in fact, the whole reach between Cape Virgins and Punta Arenas, is low-lying, bare, and hopelessly uninteresting. To the naked

eye on both sides the great undulating plain seemed dotted with fields, forests, and villages; but the glass soon dispelled the illusion, for the varied forms that looked like signs of habitation were merely cloud shadows.

We anchored at four o'clock on the afternoon of our entrance in Possession Bay, some ninety-three miles from Punta Arenas. The weather was cold and squally, and the scene dreary to desolation. At four next morning we were again under way, and at 12:30 dropped anchor off Punta Arenas, the most southerly town in the world, and a bleak-looking place. It lies along a plain at the foot of a gently sloping hill; looks like an unusually large mining town; and for a background has a waste of fire-scarred forest. It looked, at first sight, as if it were a collection of corrugated iron shacks, but this presumption was dispelled by a visit ashore, when the business-like and substantial looking appearance of the houses was immediately noticed. It has about thirteen thousand inhabitants, is a free port, and is the centre not only of important shipping interests, but of a large and fast-growing sheep industry. Gold dredging has been recently introduced with every prospect of success; and, taken altogether, Punta Arenas is a thriving, prosperous, and up-to-date town. The cruiser *Chacabuco*, of the Chilean navy, with our Minister to Santiago, Hon. John Hicks, on board, met us here, and the usual courtesies between the officials on both sides were carried on with much heartiness and cordiality. The Admiral was a bit worried on our arrival to learn that one of his expected colliers was not on hand, but his anxiety was relieved next day by her presence in port. The process of coaling was gone through rapidly and systematically, and provision was made for the Torpedo Flotilla, which arrived on the 4th in excellent shape, from Buenos Aires, where it had been fêted by the Argentines with lavish hospitality.

Punta Arenas offered but few attractions for the men, but notwithstanding this, large parties were ashore every day. A grand ball was given by the Governor on the 5th to the officers of the Fleet, and another by the American Consul. With these were the usual quota of dinners and luncheons on the Chilean flagship and on shore. All were returned by an elaborate reception on the *Connecticut* the afternoon of the 6th, and an official dinner to the Governor, Chilean officers, and Fleet Commanders by Admiral Thomas on the *Minnesota* that same evening.

Our short stay in Punta Arenas was thoroughly enjoyed. Many of the officers took advantage of their stay

to cross the Straits for some excellent shooting in the vicinity of a village called Parvenir. All the saddle-horses in town were kept busy every afternoon, and both men and officers took advantage of the open country for long walks in the hills. The people, most cosmopolitan in character, were courteous to all; the two local clubs kept open house; the photograph and souvenir shops did a great business; all the postal cards in the town were bought up. One particular courtesy extended by the Chilean government was especially appreciated. Each officer was permitted to cable home a message of twelve words free of charge, and five such free messages were allotted each day to every warship in the Fleet. Friday was taken leisurely, sailing orders being issued for seven in the evening.

On the evening of Friday, February 7, the Fleet lay at anchor in the roadstead off Punta Arenas waiting for the order to get under-way. The night was dark, a chill wind blew up from the south, and the town, its crudeness hidden in gloom, looked like a city in fairyland, with myriad lights along its water-front and on the hill slopes behind. Bunkers were full to overflowing, the Flotilla and auxiliaries having finished coaling that afternoon. Everything was shipshape, courtesies were returned, stores were on board, and everything eager to get under-way. The weather indications were normal; and as the Admiral wanted to catch a favorable tide off the entrance to the Straits proper at daylight the next morning, we were timed to start at eleven o'clock. Promptly at six bells the expected signal was flashed from the *Connecticut* and the Fleet at once got under-way. Division after division steamed into position in perfect order, with Ardois lights glowing and semaphores blinking, while the city lights waxed fainter and fainter in the distance.

(Continued on page 29)

PERSONNEL AND SHIPS OF THE ATLANTIC FLEET

SECOND SQUADRON—THIRD DIVISION.

REAR ADMIRAL CHARLES M. THOMAS, Commanding.

Lieutenant Kenneth G. Castleman.....Flag Lieutenant
Lieutenant Frank D. Berrien.....Aid on Staff

Battleships *Minnesota*, *Ohio*, *Missouri*, and *Maine*.

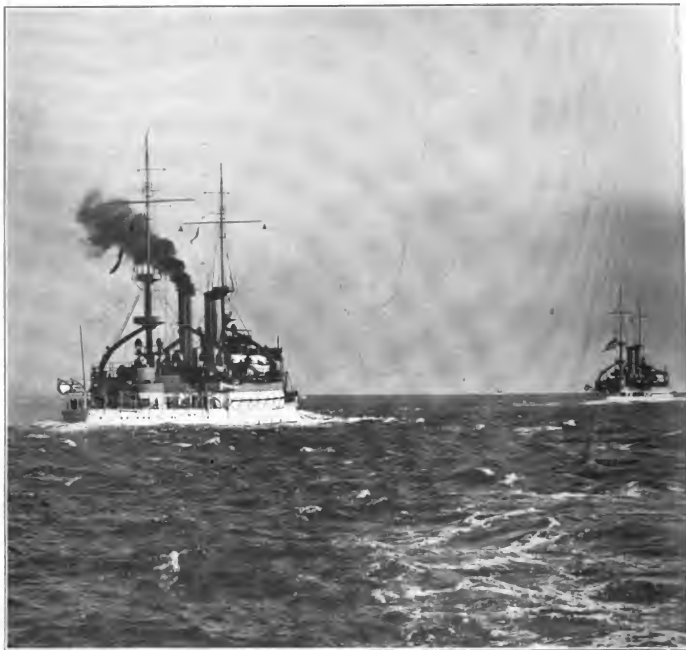


BATTLESHIP MINNESOTA Flagship of the Squadron

Normal displacement.....	16,000 tons
Full load displacement.....	17,650 tons
Length over all.....	456 feet 4 inches
Beam.....	76 feet 10 inches
Mean draught.....	24 feet 6 inches
Bunker capacity.....	2,200 tons
Speed on trial.....	18 knots
Battery—Four 12-inch, eight 8-inch, twelve 7-inch, twenty 14-pdr., and small guns; four 21-inch submerged torpedo tubes.	
Armor—Main armor belt: 9 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches; eight-inch, 6½ inches. Barbettes: twelve-inch, 10 inches; eight-inch, 6 inches.	

Captain John Hubbard.....Commanding Officer
 Lieutenant-Commander William G. Miller.....Executive Officer
 Lieutenant-Commander William K. Harrison.....Navigating Officer
 Lieutenant-Commander Orton P. Jackson.....Ordnance Officer
 Lieutenant Ivan C. Wettengel.....Senior Engineer Officer
 Lieutenant Charles P. Nelson.....
 Lieutenant John J. Hyland.....
 Lieutenant Roe R. Adams.....
 Ensign Harold R. Stark.....
 Ensign William Ancrum.....
 Ensign Herbert F. Leary.....
 Ensign Lloyd W. Townsend.....
 Midshipman Richard Hill.....
 Midshipman Raymond A. Spruance.....
 Midshipman Weyman P. Beehler.....
 Midshipman John M. Schelling.....
 Midshipman William O. Wallace.....
 Midshipman Claudius R. Hyatt.....
 Midshipman John S. Barleon.....

Midshipman Ezra G. Allen.....
 Midshipman William F. Amsden.....
 Midshipman Virginius E. Clark.....
 Midshipman William E. Sherlock, Jr.....
 Midshipman Thaddeus A. Thomson, Jr.....
 Surgeon Washington B. Grove.....Medical Officer
 Assistant Surgeon William S. Kuder.....Assistant Medical Officer
 Paymaster George M. Stackhouse.....Pay Officer
 Captain of Marines Logan Feland.....
 Second Lieutenant of Marines David M. Randall.....
 Sydney K. Evans.....Chaplain
 Chief Boatswain Martin Fritman.....
 Chief Gunner Thomas S. Aveson.....
 Gunner H. J. Palmer.....
 Carpenter Joseph F. McCole.....
 Warrant Machinist David Furdon.....
 Warrant Machinist James M. Ober.....
 Warrant Machinist James L. Valliant.....
 James L. Carter.....Paymaster's Clerk



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VIEW, FROM HAMPTON ROADS, OF THE ATLANTIC FLEET
THE KENTUCKY IN THE



LEAVING ON ITS CRUISE TO THE PACIFIC, DECEMBER 16, 1907
FOREGROUND AT THE LEFT



BATTLESHIP OHIO

Normal displacement.....	12,500 tons
Full load displacement.....	13,500 tons
Length over all.....	393 feet 10 inches
Beam.....	72 feet 2½ inches
Mean draught.....	23 feet 7 inches
Bunker capacity.....	2,150 tons
Speed on trial.....	17.82 knots
Battery—Four 12-inch, sixteen 6-inch, six 14-pdr., and small guns; two 18-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches. Barbettes: twelve-inch, 12 inches.	

Captain Charles W. Bartlett.....Commanding Officer
 Lieutenant-Commander Webster A. Edgar.....Executive Officer
 Lieutenant-Commander John F. Hubbard.....Navigating Officer
 Lieutenant-Commander William K. Gise.....Ordnance Officer
 Lieutenant Fletcher L. Sheffield.....Senior Engineer Officer
 Lieutenant Cyrus W. Cole
 Lieutenant Charles T. Wade
 Lieutenant Frank W. Sterling
 Ensign Chandler K. Jones
 Ensign Richard P. McCullough
 Ensign Hugh Brown
 Midshipman Ray S. McDonald
 Midshipman Albert C. Read
 Midshipman John A. Monroe
 Midshipman Charles W. Crosse
 Midshipman Eugene B. Walker
 Midshipman George Joerns

Midshipman Charles E. Hovey
 Midshipman Charles S. Keller
 Surgeon Will M. Garton.....Medical Officer
 Passed Ass't Surgeon George M. Mayers.....Ass't Medical Officer
 Passed Assistant Paymaster John A. B. Smith, Jr....Pay Officer
 Captain of Marines Henry C. Davis
 First Lieutenant of Marines Arthur B. Owens
 Chief Boatswain Albert F. Benson
 Chief Gunner Allan S. Mackenzie
 Chief Gunner (electrical) Bert E. Staples
 Carpenter Robert H. Neville
 Warrant Machinist Charles Hammond
 Warrant Machinist John P. Richter
 Warrant Machinist Bernard Christensen
 Warrant Machinist Axel V. Ketels
 Warrant Machinist Leonard N. Linsley
 T. M. Schnotala.....Paymaster's Clerk



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BATTLESHIP MISSOURI

Normal displacement.....	12,500 tons
Full load displacement.....	13,500 tons
Length over all.....	303 feet 11 inches
Beam.....	72 feet 2½ inches
Mean draught.....	23 feet 11 inches
Bunker capacity.....	1,825 tons
Speed on trial.....	18.15 knots
Battery—Four 12-inch, sixteen 6-inch, six 14-pdr., and small guns; two 18-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches. Barbettes: twelve-inch, 12 inches.	

Captain Greenleaf A. Merriam.....Commanding Officer
 Lieutenant-Commander Archibald H. Scales.....Executive Officer
 Lieutenant-Commander Jay H. Sypher.....Navigating Officer
 Lieutenant Jonas H. Holden.....Ordnance Officer
 Lieutenant Robert Henderson.....Senior Engineer Officer
 Lieutenant John E. Lewis.....
 Lieutenant James P. Murdock.....
 Lieutenant Robert Wallace, Jr.....
 Lieutenant Frank B. Freyer.....
 Ensign David McD. Le Breton.....
 Ensign William L. Culbertson, Jr.....
 Ensign Laurance N. McNair.....
 Midshipman Douglas L. Howard.....
 Midshipman William C. I. Stiles.....
 Midshipman Lesley B. Anderson.....
 Midshipman Philip G. Lauman.....
 Midshipman Henry K. Hewitt.....

Midshipman Charles R. Clark.....
 Midshipman James B. Howell.....
 Midshipman Carl C. Krakow.....
 Midshipman William T. Mallison.....
 Surgeon Leckinski W. Spratling.....Medical Officer
 Assistant Surgeon Harry L. Smith.....Assistant Medical Officer
 Paymaster William H. Doherty.....Pay Officer
 Captain of Marines Julius S. Turrill.....
 Second Lieutenant of Marines Robert L. Denig.....
 Boatswain David White.....
 Chief Gunner John H. Lohman.....
 Gunner Henry Rieck.....
 Chief Carpenter Lewis S. Warford.....
 Warrant Machinist Kellum D. Grant.....
 Warrant Machinist Francis P. Mugan.....
 Warrant Machinist Arthur W. Bird.....
 William McDonough.....Paymaster's Clerk



BATTLESHIP MAINE

Normal displacement	12,500 tons
Full load displacement	13,500 tons
Length over all	393 feet 11 inches
Beam	72 feet 2½ inches
Mean draught	23 feet 10 inches
Bunker capacity	1,875 tons
Speed on trial	18 knots
Battery—Four 12-inch, sixteen 6-inch, six 14-pdr., and small guns; two 18-inch submerged torpedo tubes.	
Armor—Main armor belt: 11 inches thick. Turrets: extreme thickness, twelve-inch, 12 inches. Barbettes: twelve-inch, 12 inches.	

Captain Giles B. Harber.....Commanding Officer
 Lieutenant-Commander Warren J. Terhune....Executive Officer
 Lieutenant-Commander Joel R. P. Pringle....Navigating Officer
 Lieutenant Ralph Earle.....Ordnance Officer
 Lieutenant Frank P. Baldwin.....Senior Engineer Officer
 Lieutenant William K. Riddle
 Lieutenant Walter E. Whitehead.
 Ensign Lamar R. Leahy.
 Ensign Hugh M. Walker.
 Ensign Roscoe F. Dillen.
 Ensign Byron McCandless.
 Ensign Edmund S. Root.
 Midshipman Whitford Drake.
 Midshipman Andrew S. Hickey.
 Midshipman Guy E. Davis.
 Midshipman Joseph S. Evans.
 Midshipman Robert T. S. Lowell.

Midshipman Charles C. Slayton.
 Midshipman Harold M. Bemis.
 Midshipman Elmer W. Tod.
 Midshipman Cortland C. Baughman.
 Surgeon Middleton S. Elliott.....Medical Officer
 Assistant Surgeon Dow H. Cato.....Assistant Medical Officer
 Paymaster Edward T. Hoopes.....Pay Officer
 Captain of Marines Nert H. Hall.
 First Lieutenant of Marines Benjamin A. Lewis.
 Boatswain John Danner.
 Boatswain William Fremgen.
 Gunner Harry Webb.
 Carpenter Ernest L. Bass.
 Warrant Machinist Edward A. Manck.
 Warrant Machinist Paul R. Fox.
 Warrant Machinist George R. Thompson.
 Ambrose J. Barnum.....Paymaster's Clerk

THE CRUISE TO THE PACIFIC

[Continued from page 22]

FROM PUNTA ARENAS TO CALLAO

Punta Arenas was behind us, and before us Magellan Strait proper, the one critical point in the whole voyage. Magellan, the daring Portuguese navigator who discovered and first navigated it successfully, had preceded us by some three hundred and eighty-eight years; and though progress in all departments of navigation has done much to minimize its perils, it still remains, with its fogs, snow flurries, chill winds, and rock-flung walls, a perilous route for the most carefully combed and stanchest craft. From Cape Virgins to Cape Froward, the run presents no especial difficulties, but from Cape Froward, the most southerly point on the South American continent, to Cape Pilar at the Pacific entrance, a distance of some two hundred and fifty miles, the passage presented problems that, particularly in the case of a large Fleet, called for seamanship of the highest order. As we steamed away from Punta Arenas these considerations, however, were giving no one any worry, the possibilities of a good photographic light for the run next day being a more popular topic of discussion than any probable dangers that might be ahead. There was nothing to worry about and nobody worried. Our Navigator and Captain knew their business, we knew that they knew it, and there the matter rested. At a ten-knot speed we were prompt to a nicety, for Cape Froward, grim and silent, was on our starboard hand by 5 A. M. It lay before us "as in a glass darkly," its cloud-capped peak twelve hundred feet above, its whole aspect bleak and desolate, but still a fitting sentinel for the channel it guarded and an appropriate vis-a-vis for the giant barrier of Dawson Island across the Straits to the south.

At standard speed, but with a swift tide helping, the Fleet passed into the channel, four hundred yards between ships, eight hundred between divisions, and in splendid formation. The morning was grey and cold and cloudily, a suggestion of mist was in the air and there was but little wind. All hands were on deck; the fore-castle and superstructure were thick with men, the quarterdeck dotted with eager groups from the wardroom. Cameras by the dozen were in evidence, and the light, though unsatisfactory, seemed no bar to a riot of photography. On the after bridge, Captain Ingersoll, with the other members of the Admiral's staff, watched the Fleet with unceasing vigilance, and every position was

promptly reported by them to the "Old Man," who, from his emergency cabin, — although still too unwell to be out on the bridge, — was in perfect command of the situation. As the morning advanced, the grandeur of the scene became more and more striking. On each side, rugged, snow-capped hills lined the Strait, with here and there a sheltered bay, the channel flowing between, silent and dark. At times one thought of the Saguenay; then, again, of Lake Lucerne and the Rigi; then straightway a stretch would break upon the view as fascinating in its charm as a Norwegian Fjord, or as wildly picturesque as an Alaskan shoreline. At times the rock walls fell away to gently sloping hills, on which a mass of stunted trees and underbrush seemed to thrive; at times they widened out for miles, and then we caught vistas of marvelous mountain ranges stretching away north and south to the far horizon, snow-capped and desolate, where glaciers brooded and where a night of perpetual silence seemed to reign.

Of inhabitants we saw neither trace nor sign. On Terra del Fuego directly south of Punta Arenas, some two thousand of the nomad Indian tribes still survive, but on Dawson and Desolation Island there did not seem to be a living soul.

Thanks to the tide and the excellent conditions all round, we were by noon far ahead of our schedule, so that, barring accident, there was no question of our being able to round Cape Pilar before night. Before reaching Cape Phenix in the early afternoon, we had the good fortune to see some magnificent glaciers at close range. The ice shone steely blue under a thin mantle of snow, and along the courses that were scarred in the face of the declivity beneath them, silver streams came tumbling down. A long stretch of peculiarly tinted rock, that looked like drifted snow or ice, caught our attention later on; and so deceptive was its appearance that its true character could only be told by the help of a powerful glass. By four o'clock a curtain of mist fell across the channel, and for a time it seemed as if the weather would thicken; but the fog fortunately never deepened, and, without a single mishap, by six o'clock we were abreast of Cape Pilar and in touch with the long heaving roll of the turbulent Pacific. The Straits had been passed without incident, and by seven o'clock our bows were pointed for Valparaiso.

The Torpedo Flotilla, which followed us, took the inward passage through Smyth's Channel, on its way to the Chilean port of Talchana; and the cruiser *Chacabuco*, which kept ahead of us all day, at varying distances but

without in the least influencing our movements, was on our starboard bow. Everybody was naturally gratified at the success of our run through the Strait, and now that the real test of the trip was over, it was only a question of days to Magdalena. The weather at this point became foggy and unpleasant, and the ships which had passed from column, natural order, into column by Divisions, rolled in the swell of a nasty beam sea. These conditions remained about the same for two or three days; but as we got farther north the breath of the tropics again came to us and the weather began to get perceptibly warmer.

Our next port of call was to be Valparaíso, where a grand review of the Fleet was to be held by the President of Chili. For the success of this all hands were especially keen. The *Chacabuco*, which had gone to Talchuaná to wire the exact time of our arrival, returned on the morning of the 13th, accompanied by three Chilean torpedo boat destroyers, which were to act with it, as a squadron of escort during the review. That afternoon we met the *Chicago* en route to Magellan Strait, homeward bound. As she drew near the Fleet she fired the customary salute to the Admiral, and then her crew gave three rousing, hearty cheers, which were returned by the crew of the *Connecticut* with equal enthusiasm and good will.

On the 14th, the Fleet changed into column, natural order, and in this formation approached the harbor of Valparaíso. As we came close enough for accurate observation we could see that the slopes along the shoreline around the Cape were thick with people. On a hill crest above the Bay we were able to discern an immense "Welcome" in white letters, which, on closer inspection, we found was formed by rows of Chilean sailors in white uniforms. Soon the strains of massed hands could be heard, and with them the cheering of thousands. As we rounded the harbor entrance at a speed of eight knots,

the whole sixteen ships fired simultaneously a salute of twenty-one guns, in honor of the Chilean Flag. All the shipping in the harbor was alive with bunting, and the bay was dotted with thousands of small boats. President Montt, surrounded by a brilliant party, reviewed the column from the training ship *General Bacquedana*. When the last gun of the last ship in column had been fired in honor of President Montt, the line was again headed on its way, and continued up the coast; next day, in the forenoon, we passed sufficiently close to Coquimbo and Heradura to give the people of these ports a chance to see the ships.

Then our course was headed straight for Callao, the last stopping place before Magdalena. The weather now became tropical, but by no means as warm as it was in the same latitude on the eastern coast. The nights were cool and pleasant, and the sea conditions ideal. The ship's routine was now mainly centred in work preparatory for target practice, and the various guns' crews were kept in constant training. The best of spirits was everywhere manifest, and the health of the men was phenomenal. Indeed, in the matter of physical well-being the cruise was a surprise to all. We had one or two deaths in the Fleet due to accident, and a few from disease; but among fifteen thousand for three months the percentage of sickness was so small as to be hardly worth considering.

On the 10th of February we were met by the cruiser *Bolignesi* of the Peruvian navy, which came to act as escort to us; and on the next morning, at ten, the ships in column of Divisions steamed into the harbor of Callao, where a welcome as cordial, as sincere, and as demonstrative as they would have received at home was accorded them by the Peruvian people. Our anchors were down at ten thirty and we were to have a nine days' breathing spell before our last lap to Magdalena Bay.



THE HAGUE TREATIES

EIGHT OF THE HAGUE TREATIES RATIFIED

President Roosevelt sent to the Senate, on February 27, the conventions and declaration signed by the delegates of the United States to the Second International Peace Conference, held at The Hague from June 15 to October 18, 1907. Eight of the eleven treaties submitted have been ratified by the Senate and made public, and the other three are awaiting action.

On March 10 the Senate, in executive session, ratified the following six conventions:—

1. Convention relating to the Opening of Hostilities.
2. Convention respecting the Laws and Customs of War on Land.
3. Convention respecting the Rights and Duties of Neutral Powers and Persons in case of War on Land.
4. Convention relating to the Laying of Automatic Submarine Contact Mines.
5. Convention respecting Bombardment by Naval Forces in Time of War.
6. Convention for the Adaptation to Naval War of the Principles of the Geneva Convention.

On March 12 the Senate ratified two more of The Hague agreements, as follows:—

7. Convention relating to certain Restrictions with regard to the Exercise of the Right of Capture in Naval War.
8. Declaration prohibiting the Discharge of Projectiles and Explosives from Balloons.

This leaves pending before the Senate the following conventions:—

9. Convention for the Pacific Settlement of International Disputes.
10. Convention respecting the Limitation of the Employment of Force for the Recovery of Contract Debts.
11. Convention relating to the Creation of an International Prize Court.

THE POSITION OF SECRETARY ROOT

The progress of the discussion of these proposals at The Hague was reported in detail in THE NAVY last summer. The official translation of the conventions was not then available, and could not be obtained until published in the British Blue Book and until the injunction of secrecy was removed, in this country, from the texts submitted to the Senate with the recommendations of

Secretary Root, concurred in by President Roosevelt. Secretary Root also transmitted the final Act of the Conference, the instructions to the American delegates, their report of their participation in the Conference, and copies of "the two Conventions signed by other delegates, but not signed by the American delegates, adherence to which is still open to the United States, but adherence to which is not now recommended." The right to sign The Hague Conventions is open to all nations until June 30, 1908.

Secretary Root went beyond the limits of the customary formal letter of transmittal, and said in his communication to the Senate:—

"I think the work of the Second Hague Conference, which is mainly embodied in these Conventions, presents the greatest advance ever made at any single time toward the reasonable and peaceful regulation of international conduct, unless it be the advance made at The Hague Conference of 1899. The most valuable result of the Conference of 1899 was that it made possible the work of the Conference of 1907. The achievements of the two Conferences justify the belief that the world has entered upon an orderly process through which, step by step, in successive conferences, each taking the work of its predecessor as its point of departure, there may be continual progress toward making the practice of civilized nations conform to their peaceful professions."

RESERVATIONS BY THE UNITED STATES

As to the Convention for the peaceful adjustment of international differences, Secretary Root stated that the ratification would be subject to the following declaration:—

"In approving the Convention for the Pacific Settlement of International Disputes, the United States exercises the option contained in Article 53 of said Convention, to exclude the formulation of the *compromis* by the Permanent Court, and hereby expressly excludes from the competence of the Permanent Court the power to frame the *compromis* required by general or special treaties of arbitration concluded or hereafter to be concluded by the United States; and further expressly declares that the *compromis* required by any treaty of arbitration to which the United States may be a party shall be settled only by agreement between the contracting parties, unless such treaty shall expressly provide otherwise."

Secretary Root also submitted to the Senate the Convention concerning the rights and duties of neutral powers

in naval war, voted for by a majority of the delegates, but which the American delegates at the Conference refrained from signing and reserved for further consideration. He recommends that the United States become a party to this Convention "by formal adherence," reserving, however, and excluding from this assent the second paragraph of Article III, which is in the following words:—

"If the prize is not in the jurisdiction of the neutral power, the captor government, on the demand of that power, must liberate the prize with its officers and crew."

Secretary Root also recommends that the United States reserve and exclude from its assent Article XXIII, which is in the following words:—

"A neutral power may allow prizes to enter its ports and roadsteads, whether under convoy or not, when they are brought there to be sequestrated pending the decision of a prize court. It may have the prize taken to another of its ports.

"If the prize is conveyed by a war ship, the prize crew may go on board the conveying ship.

"If the prize is not under convoy, the prize crew are left at liberty."

THE OPENING OF HOSTILITIES

One of the most important of the Conventions is the one concerning the opening of hostilities. It was ratified by the United States March 10. Stripped of the formal verbiage at the beginning, which gives the names of the signatory powers, also the final provisions directing the manner of ratification, this Convention states in its preamble that "it is important, in order to ensure the maintenance of pacific relations, that hostilities should not commence without previous warning," and that "it is equally important that the existence of a state of war should be notified without delay to neutral Powers."

The convention proper is contained in these three articles:—

Article I.—The Contracting Powers recognize that hostilities between themselves must not commence without previous and explicit warning, in the form either of a reasoned declaration of war or of an ultimatum with conditional declaration of war.

Article II.—The existence of a state of war must be notified to the neutral Powers without delay, and shall not take effect in regard to them until after the receipt of a notification, which may, however, be given by telegraph. Neutral Powers, nevertheless, cannot rely on the absence of notification, if it is clearly established that they were in fact aware of the existence of a state of war.

Article III.—Article I of the present Convention shall take effect in case of war between two or more of the contracting Powers. Article II is binding as between a belligerent Power which is a party to the Convention and neutral Powers which are also parties to the Convention.

There are five other articles to this Convention, but they simply provide that it shall be ratified as soon as possible; that ratifications shall be deposited at The Hague; that non-signatory Powers may adhere to the Convention; that denunciation shall be notified in writing to the Netherlands Government and shall only have effect in regard to the notifying Power one year after notification; and other formal details of the same general character.

SUBMARINE CONTACT MINES

The question of submarine mines precipitated one of the bitterest discussions of The Hague Conference. The preamble of the Convention agreed upon declares that the signatory nations are "inspired by the principle of the freedom of sea routes, the common highways of all nations," and that "seeing that, although the existing position of affairs makes it impossible to forbid the employment of automatic submarine contact mines, it is nevertheless desirable to restrict and regulate their employment, in order to mitigate the severity of war and to ensure, as far as possible, to peaceful navigation the security to which it is entitled, despite the existence of war," the nations assembled at The Hague have resolved upon this Convention "until such time as it is found possible to formulate rules on the subject which shall ensure to the interests involved all the guarantees desirable."

The Submarine Mines Convention is in thirteen articles, the last six of which are purely formal and deal with the method of ratification. The sense of the Convention is contained in the following provisions:—

Article I.—It is forbidden: (1) to lay unanchored automatic contact mines, except when they are so constructed as to become harmless one hour at most after the person who laid them ceases to control them; (2) to lay anchored automatic contact mines which do not become harmless as soon as they have broken loose from their moorings; (3) to use torpedoes which do not become harmless when they have missed their mark.

Article II.—It is forbidden to lay automatic contact mines off the coast and ports of the enemy, with the sole object of intercepting commercial shipping.

Article III.—When anchored automatic contact mines are employed, every possible precaution must be taken for the protection of peaceful shipping. The belligerents undertake to do their utmost to render these mines harm-

less within a limited time, and, should they cease to be under surveillance, to notify the danger zones as soon as military exigencies permit, by a notice addressed to ship owners, which must also be communicated to the Governments through the diplomatic channel.

Article IV.—Neutral Powers which lay automatic contact mines off their coasts must observe the same rules and take the same precautions as are imposed on belligerents. The neutral Power must inform ship owners, by a notice issued in advance, where automatic contact mines have been laid. This notice must be communicated at once to the Governments through the diplomatic channel.

Article V.—At the close of the war, the contracting Powers undertake to do their utmost to remove the mines which they had laid, each Power removing its own mines. As regards anchored automatic contact mines laid by one of the belligerents off the coast of the other, their position must be notified to the other party by the Power which laid them, and each Power must proceed with the least possible delay to remove the mines in its own waters.

Article VI.—The contracting Powers which do not at present own perfected mines of the pattern contemplated in the present Convention, and which, consequently, could not at present carry out the rules laid down in Articles I and III, undertake to convert the *matériel* of their mines as soon as possible, so as to bring it into conformity with the foregoing requirements.

Article VII.—The provisions of the present Convention do not apply except between contracting Powers, and then only if all the belligerents are parties to the Convention.

RIGHT OF CAPTURE IN WAR

The Convention relating to certain restrictions with regard to the exercise of the right of capture in naval war recognizes in its preamble "the necessity of more effectually ensuring than hitherto the equitable application of law to the international relations of maritime Powers in time of war," and declares that it is "expedient, in giving up, or, if necessary, in harmonizing for the common interest certain conflicting practices of long standing, to commence codifying in regulations of general application the guarantees due to peaceful commerce and legitimate business, as well as the conduct of hostilities by sea"; and to "lay down in written mutual engagements the principles which have hitherto remained in the uncertain domain of controversy or have been left to the discretion of Governments." These "engagements" are set forth in a number of rules, which are not to affect "the common law now in force with regard to the matter that the law has left unsettled," and these rules are set forth in the Convention as follows:—

Postal Correspondence.

Article I.—The postal correspondence of neutrals or belligerents, whatever its official or private character may be, found on the high seas on board a neutral or enemy ship, is inviolable. If the ship is detained, the correspondence is forwarded by the captor with the least possible delay.

The provisions of the preceding paragraph do not apply, in case of violation of blockade, to correspondence destined for or proceeding from a blockaded port.

Article II.—The inviolability of postal correspondence does not exempt a neutral mail-ship from the laws and customs of maritime war as to neutral merchant-ships in general. The ship, however, may not be searched except when absolutely necessary, and then only with as much consideration and expedition as possible.

Exemption from Capture.

Article III.—Vessels used exclusively for fishing along the coast or small boats employed in local trade are exempt from capture, as well as their appliances, rigging, tackle, and cargo. They cease to be exempt as soon as they take any part whatever in hostilities. The Contracting Powers agree not to take advantage of the harmless character of the said vessels in order to use them for military purposes while preserving their peaceful appearance.

Article IV.—Vessels charged with religious, scientific, or philanthropic missions are likewise exempt from capture.

Crews of Enemy Merchant-ships.

Article V.—When an enemy merchant-ship is captured by a belligerent, such of its crew as are nationals of a neutral State are not made prisoners of war.

The same rule applies in the case of the captain and officers likewise nationals of a neutral State, if they promise formally in writing not to serve on an enemy ship while the war lasts.

Article VI.—The captain, officers, and members of the crew, when nationals of the enemy State, are not made prisoners of war, on condition that they make a formal promise in writing, not to undertake, while hostilities last, any service connected with the operations of the war.

Article VII.—The names of the persons retaining their liberty under the conditions laid down in Article V, paragraph 2, and in Article VI are notified by the belligerent captor to the other belligerent. The latter is forbidden knowingly to employ the said persons.

Article VIII.—The provisions of the three preceding Articles do not apply to ships taking part in the hostilities.

BOMBARDMENT BY NAVAL FORCES

The Convention respecting bombardment by naval forces in time of war declares, in its preamble, that "it is expedient that bombardments by naval forces should be

subject to rules of general application which would safeguard the rights of the inhabitants and assure the preservation of the more important buildings, by applying as far as possible to this operation of war the principles of the Regulation of 1869 respecting the laws and customs of land war."

Stripped of its mere formal phraseology, the convention regarding naval bombardment, which the Senate has ratified, is as follows:—

Article I.—The bombardment by naval forces of undefended ports, towns, villages, dwellings, or buildings is forbidden. A place cannot be bombarded solely because automatic submarine contact mines are anchored off the harbor.

Article II.—Military works, military or naval establishments, depots of arms or war materiel, workshops or plant which could be utilized for the needs of the hostile fleet or army, and the ships of war in the harbor, are not, however, included in this prohibition. The commander of a naval force may destroy them with artillery, after a summons followed by a reasonable time of waiting, if all other means are impossible, and when the local authorities have not themselves destroyed them within the time fixed.

He incurs no responsibility for any unavoidable damage which may be caused by a bombardment under such circumstances.

If for military reasons immediate action is necessary and no delay can be allowed the enemy, it is understood that the prohibition to bombard the undefended town holds good, as in the case given in paragraph 1, and that the commander shall take all due measures in order that the town may suffer as little harm as possible.

Article III.—After due notice has been given, the bombardment of undefended ports, towns, villages, dwellings, or buildings may be commenced, if the local authorities, after a formal summons has been made to them, decline to comply with requisitions for provisions or supplies necessary for the immediate use of the naval force before the place in question. These requisitions shall be in proportion to the resources of the place. They shall only be demanded in the name of the commander of the said naval force, and they shall, as far as possible, be paid in cash; if not, they shall be evidenced by receipts.

Article IV.—Undefended ports, towns, villages, dwellings, or buildings may not be bombarded on account of failure to pay money contributions.

Article V.—In bombardments by naval forces all the necessary measures must be taken by the commander to spare as far as possible sacred edifices, buildings used for artistic, scientific, or charitable purposes, historic monuments, hospitals, and places where the sick or wounded are collected, on the understanding that they are not used at the same time for military purposes. It is the duty of the inhabitants to indicate such monuments, edifices, or places by visible signs, which shall consist of large stiff

rectangular panels divided diagonally into two colored triangular portions, the upper portion black, the lower portion white.

Article VI.—If the military situation permits, the commander of the attacking naval force, before commencing the bombardment, must do his utmost to warn the authorities.

Article VII.—A town or place, even when taken by storm, may not be pillaged.

HOSPITAL SHIPS

The recent controversy over the hospital-ship question, which led to the resignation of Rear-Admiral Brownson from the Bureau of Navigation, lends additional interest to the Convention for the adaptation, to naval war, of the principles of the Geneva Convention. The essential articles of this Convention are as follows:—

Article I.—Military hospital-ships—that is to say, ships constructed or assigned by States specially and solely with a view to assisting the wounded, sick, and shipwrecked—the names of which [ships] have been communicated to the belligerent Powers at the commencement or during the course of hostilities, and in any case before they are employed, shall be respected, and cannot be captured while hostilities last. These ships, moreover, are not on the same footing as warships as regards their stay in a neutral port.

Article II.—Hospital ships, equipped wholly or in part at the expense of private individuals or officially recognized relief societies, shall be likewise respected and exempt from capture, if the belligerent Power to whom they belong has given them an official commission and has notified their names to the hostile Power at the commencement of or during hostilities, and in any case before they are employed. These ships must be provided with a certificate from the competent authorities declaring that the vessels have been under their control while fitting out and on final departure.

Article III.—Hospital ships, equipped wholly or in part at the expense of private individuals or officially recognized societies of neutral countries, shall be respected and exempt from capture, on condition that they are placed under the control of one of the belligerents, with the previous consent of their own Government and with the authorization of the belligerent himself, and that the latter has notified their name to his adversary at the commencement of or during hostilities, and in any case, before they are employed.

Article IV.—The ships mentioned in Articles I, II, and III shall afford relief and assistance to the wounded, sick, and shipwrecked of the belligerents without distinction of nationality. The Governments undertake not to use these ships for any military purpose. These vessels must in no wise hamper the movements of the combatants. During and after an engagement they will act at

their own risk and peril. The belligerents shall have the right to control and search them; they can refuse to help them, order them off, make them take a certain course, and put a Commissioner on board; they can even detain them, if important circumstances require it. As far as possible, the belligerents shall enter in the log of the hospital ships the orders which they give them.

Article V.—Military hospital ships shall be distinguished by being painted white outside, with a horizontal band of green about a metre and a half in breadth. The ships mentioned in Articles II and III shall be distinguished by being painted white outside, with a horizontal band of red about a metre and a half in breadth. The boats of the ships above mentioned, as also small craft which may be used for hospital work, shall be distinguished by similar painting. All hospital ships shall make themselves known by hoisting, with their national flag, the white flag with a red cross provided by the Geneva Convention, and further, if they belong to a neutral State, by flying at the mainmast the national flag of the belligerent under whose control they are placed. Hospital ships which, in the terms of Article IV, are detained by the enemy, must haul down the national flag of the belligerent to whom they belong. The ships and boats above mentioned which wish to ensure by night the freedom from interference to which they are entitled, must, subject to the assent of the belligerent they are accompanying, take the necessary measures to render their special painting sufficiently plain.

Article VI.—The distinguishing signs referred to in Article V can only be used, whether in time of peace or war, for protecting or indicating the ships therein mentioned.

Article VII.—In case of a fight on board a warship, the sick-wards shall be respected and spared as far as possible. The said sick-wards and the material belonging to them remain subject to the laws of war; they cannot, however, be used for any purpose other than that for which they were originally intended, so long as they are required for the sick and wounded. The commander, however, into whose power they have fallen may apply them to other purposes, if the military situation requires it, after seeing that the sick and wounded on board are properly provided for.

Article VIII.—Hospital ships and sick-wards of vessels are no longer entitled to protection if they are employed for the purpose of injuring the enemy. The fact of the staff of the said ships and sick-wards being armed for maintaining order and for defending the sick and wounded, and the presence of wireless telegraphy apparatus on board, is not sufficient reason for withdrawing protection.

Article IX.—Belligerents may appeal to the charity of the commanders of neutral merchant ships, yachts, or boats to take on board and tend the sick and wounded. Vessels responding to this appeal, and also vessels which have of their own accord rescued sick, wounded, or shipwrecked men, shall enjoy special protection and certain

immunities. In no case can they be captured for having such persons on board, but, apart from special undertakings that have been made to them, they remain liable to capture for any violations of neutrality they may have committed.

Article X.—The religious, medical, and hospital staff of any captured ship is inviolable, and its members cannot be made prisoners of war. On leaving the ship they take away with them the objects and surgical instruments which are their own private property. This staff shall continue to discharge its duties while necessary, and can afterwards leave, when the Commander-in-chief considers it possible. The belligerents must guarantee to the said staff, when it has fallen into their hands, the same allowances and pay which are given to the staff of corresponding rank in their own navy.

Article XI.—Sailors and soldiers on board, when sick or wounded, as well as other persons officially attached to fleets or armies, whatever their nationality, shall be respected and tended by the captors.

Article XII.—Any war-ship belonging to a belligerent may demand that sick, wounded, or shipwrecked men on board military hospital ships, hospital ships belonging to relief societies or to private individuals, merchant ships, yachts, or boats, whatever the nationality of these vessels, should be handed over.

Article XIII.—If sick, wounded, or shipwrecked persons are taken on board a neutral war-ship, every possible precaution must be taken that they do not again take part in the operations of the war.

Article XIV.—The shipwrecked, wounded, or sick of one of the belligerents who fall into the power of the other belligerent are prisoners of war. The captor must decide, according to circumstances, whether to keep them, send them to a port of his own country, to a neutral port, or even to an enemy port. In this last case, prisoners thus repatriated cannot serve again while the war lasts.

Article XV.—The shipwrecked, sick, or wounded who are landed at a neutral port with the consent of the local authorities, must, unless an arrangement is made to the contrary between the neutral State and the belligerent States, be guarded by the neutral State so as to prevent them again taking part in the operations of the war. The expenses of tending them in hospital and internment shall be borne by the State to which the shipwrecked, sick, or wounded persons belong.

Article XVI.—After every engagement, the two belligerents, so far as military interests permit, shall take steps to look for the shipwrecked, sick, and wounded, and to protect them, as well as the dead, against pillage and ill treatment. They shall see that the burial, whether by land or sea, or cremation of the dead shall be preceded by a careful examination of the corpse.

Article XVII.—Each belligerent shall send, as early as possible, to the authorities of their country, navy, or army the military marks or documents of identity found on the

dead and the description of the sick and wounded picked up by him. The belligerents shall keep each other informed as to internments and transfers, as well as to the admissions into hospital and deaths which have occurred among the sick and wounded in their hands. They shall collect all the objects of personal use, valuables, letters, etc., which are found in the captured ships, or which have been left by the sick or wounded who died in hospital, in order to have them forwarded to the persons concerned by the authorities of their own country.

Article XVIII.—The provisions of the present Convention do not apply except between Contracting Powers, and then only if all the belligerents are parties to the Convention.

Article XIX.—The Commanders-in-chief of the belligerent fleets must see that the above Articles are properly carried out; they will have also to see to cases not covered thereby, in accordance with the instructions of their respective Governments, and in conformity with the general principles of the present Convention.

Article XX.—The Signatory Powers shall take the necessary measures for bringing the provisions of the present Convention to the knowledge of their naval forces, and especially of the members entitled thereunder to immunity, and for making them known to the public.

Article XXI.—The Signatory Powers likewise undertake to enact or to propose to their Legislatures, if their criminal laws are inadequate, the measures necessary for checking in time of war individual acts of pillage and

ill-treatment in respect to the sick and wounded in the fleet, as well as for punishing, as an unjustifiable adoption of naval or military marks, the unauthorized use of the distinctive marks mentioned in Article V by vessels not protected by the present Convention. They will communicate to each other, through the Netherlands Government, the enactments for preventing such acts at the latest within five years of the ratification of the present Convention.

PROJECTILES FROM BALLOONS

In addition to the Conventions, there was sent to the Senate to be ratified a "Declaration" respecting the discharging of projectiles from balloons. It was inspired by the sentiments which appeared in the Declaration of St. Petersburg of November 29, 1868, and in The Hague Declaration of July 29, 1899, which expired before the Second Hague Conference met. This new Declaration on the subject was ratified by the Senate on March 12; its essential language follows:—

"The Contracting Powers agree to prohibit, for a period extending to the close of the Third Peace Conference, the discharge of projectiles and explosives from balloons or by other new methods of a similar nature. The present Declaration is only binding on the Contracting Powers in case of war between two or more of them. It shall cease to be binding from the time when, in a war between the Contracting Powers, one of the belligerents is joined by a non-Contracting Power."

THE NAVAL MILITIA

Another vigorous attempt is being made by Chairman Foss, of the House Naval Committee, and his colleagues to secure the passage of a law to establish a naval militia and to define its relations to the general government. With that end in view, the House Naval Committee, on March 13, agreed upon a favorable report on the Naval Militia Bill which Mr. Foss introduced in the House on December 12, 1907. This measure has the endorsement of the Navy Department, the General Board of the Navy, and of Assistant Secretary Newberry, who has done probably more than any other government official in recent years to forward the development of this valuable auxiliary to the personnel of the Navy.

The naval militia of the several States have long been desirous for the passage of a law recognizing their standing and defining their relations to the national government; at an annual meeting of the Association of the Naval Militia in Washington, on January 14, 1904, the

Naval Militia Bill was unanimously approved. The strength of the naval militia of the various States is 5,757. As reported to the House, the Foss Bill provides that such of the organized militia as each State may elect shall constitute a naval militia; that all of the provisions of the Dick Act of January 21, 1903, which define the relations between the organized militia and the federal government, shall be applicable to the naval militia as part of the organized militia of the States and Territories, and that the Secretary of the Navy perform, so far as the naval militia is concerned, the same duties performed under the Dick Act by the Secretary of War for the land militia.

Under the Foss Bill, the Secretary of the Navy may, upon the request of any Governor or of the Commissioners of the District of Columbia, appoint officers to instruct, examine, and train the naval militia in order to obtain uniformity in organization, discipline, training, armament,

and equipment, and to assimilate them to the United States Navy standard. When called into actual service of the United States, the naval militia would be governed by the same rules and articles as the regular navy, and appropriations by Congress for the naval militia would be distributed among them according to such equitable proportions as the Secretary of the Navy should determine. Congress last year appropriated \$60,000 for the naval militia. This year's estimates call for an appropriation of \$100,000. This increase is in accordance with the effort, through the Foss Bill, to put the naval militia on the same basis as the land militia under the Dick Act. The decisions regarding the use of money under the Dick Act for ammunition for target practice have been such as to bar the organized naval militia from any participation in it. While the naval militia has proved by its service its value to the country, especially during the Spanish-American War, they are not permitted to compete in the rifle practice, because of the limitations imposed by the construction made of the provisions of the Dick Act.

GROWTH OF THE MOVEMENT

The naval militia movement has grown out of an effort to create a force of men and ships to be available for reinforcing the regular navy on demand. A bill was introduced in Congress in 1887 to create a naval reserve of auxiliary cruisers, officers, and men from the mercantile marine; it failed to become law. The Navy Department, in the same year, prepared a naval militia plan; and the following year Congress was asked, but refused, to provide for the enrollment of naval militia. This became the basis of action in several States, with the result that on October 1, 1891, California, Massachusetts, New York, North Carolina, Rhode Island, and Texas reported an enrolled naval militia of 1,149 officers and men, constituting parts of the national guard, or volunteer militia, of those States.

In 1892 Texas had dropped out and South Carolina joined, leaving the total enrollment 1,794. The organizations of four States were then drilled on sea-going men-of-war of the navy. The force reported from nine States in 1893 was 2,376, and the naval militia of five States drilled on naval vessels. In 1894 eleven States reported 2,539 men, exclusive of officers, and six States drilled their forces on naval ships. In 1895 thirteen States reported 2,695 men, exclusive of officers, four States drilling on naval ships; one State's force made a boat reconnaissance and survey. Fourteen States in 1896 reported 3,339 men, exclusive of officers, and most of the organizations were drilled on naval vessels; some went

into camp. Fifteen States reported 3,793 men in 1897. In that year the naval militia of twelve States was drilled on naval ships and with torpedo boats. Target practice, mainly with sub-caliber guns, was given. A memorandum for the probable field of operations was prepared from the views of the Naval War College and reports of inspection boards. This memorandum included:—

Manning a flotilla for defense of interior waters.
Protection of harbors by mines and improvised batteries.

Maintenance of signal stations and a system of scouting.

In 1898, prior to the outbreak of hostilities of the Spanish-American War, it was found necessary to make a large increase in the enlisted force of the navy. The only additional trained men available were those of the naval militia of the States, which, under Congressional appropriations, had been armed, equipped, and given training in the line of defense of the coasts and harbors. In the absence of authority for calling these men into service, the Governors of these States patriotically granted them leaves of absence, or permitted them to resign from the Naval Militia in order to enlist in the navy.

THE MILITIA IN WARTIME

During the war, about four thousand officers and men were thus added to the regular navy and assigned to duty in the Auxiliary Naval Forces, the Coast Signal Service, and especially on cruising ships, of which the *Yankee*, *Dirie*, *Prairie*, and *Yosemite* were entirely officered and manned by them, with the exception of the commanding, executive, and navigating officers. These organizations were largely recruited outside the sea-going class, and lacked experience in gunnery, navigation, and sea habits required for high naval efficiency, but they were men of a high standard of intelligence and learned rapidly.

By Congressional resolution of May, 1898, the Auxiliary Naval Force was authorized for coast defense. The personnel was almost entirely contributed by naval militia organizations, and a small percentage by the merchant marine. The monitors were commissioned, and were officered and manned by the naval militia. Many of the vessels of the coast defense cruised from port to port and went to sea for target practice, which gave valuable training. This service furnished a sense of protection to the Atlantic coast line. Ten yachts and five tugs were bought, and at its maximum strength the Auxiliary Naval Force included forty-one commissioned vessels. The duty of protecting mine fields and of

maintaining quarantine vessels were performed by a fleet of eight converted yachts, ten converted tugs, and a side-wheel steamer, all officered and manned by the naval militia; and by four revenue cutters, with their regular officers and crews, which were stationed on the Pacific Coast. The Atlantic Coast was divided into eight districts, in which were distributed thirty-six signal stations, officered and manned entirely by State naval militia, extending the signal service along the coast from Maine to Texas. During the Spanish War, 856 volunteer officers served in the navy, and the experience of that war demonstrated the need of a national naval reserve force to be subject to the national government in time of war.

THE NAVAL MILITIA TO DAY

In 1899 the naval militia of sixteen States was drilled under the supervision of regular navy officers on men-of-war, and the enlisted men aggregated 6,302. Nine militia forces were drilled the next year, and the number dropped to 5,309. Five States had the use of navy ships. In 1901 the naval militia of six States were drilled under regular navy officers, and the number of men enrolled fell to 4,679. From 1901 to 1906 the routine of drills has continued, and the number of men has averaged

4,808. Inspecting officers of the navy have reported that the naval militia lacks proper drill and instruction facilities. During the past year, twenty-six vessels of the navy have been assigned to the naval militia. Last summer the *Prairie* was employed, from the end of June until October 1, in taking out various naval militia organizations on sea cruises averaging eight days. The organizations which took these cruises on the *Prairie* were the naval militias of Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, South Carolina, and Georgia. In addition to this training, the naval militias of the Lake States participated in maneuvers off Bois Blanc Island, in Lake Superior, the vessels taking part being the *Gopher*, *Dorothea*, *Essex*, and *Hawk*, commanded by the *Wolverine*. The cruises made by organizations to which vessels are regularly assigned were those of the First Battalion of New Jersey, on board the *Portsmouth*; Maryland Naval Militia, on the *Isla de Cuba*; Louisiana Naval Militia, on the *Stranger* and *Alvarado*; and the California Naval Militia, on the *Alert*. Besides this, the Michigan Naval Militia took the *Don Juan de Austria* from the Portsmouth, N.H., navy-yard, through the St. Lawrence River to Detroit; and the Missouri Naval Militia took the *Huntress* from the Pensacola navy-yard up the Mississippi River to St. Louis.

THE PROBLEM OF COLLIERIES

The cruise of the battleship fleet to the Pacific coast has brought home forcibly to the government the need of colliers. There are now 18 colliers in the navy, only four of which are considered available to accompany the fleet on a long cruise, on account of their capacity. Two more colliers—the *Vestal* and the *Prometheus*—are being built at the New York and Mare Island Navy Yards. They will not be done for some time, the *Vestal* having been 69.40 per cent completed on March 1, and the *Prometheus* 38.40 per cent completed at that time.

The program of the Administration for the increase of the navy called for the construction of four fleet colliers, at a total cost of \$7,000,000; but the House Naval Committee, in its agreement upon the Naval Bill to be reported to Congress, refrained from granting a single collier. However, the committee, which had been governed by considerations of economy in reducing the naval program, slowed later that its heart was in the right place by agree-

ment upon a favorable report, on March 13, of the bill introduced by Representative Roberts of Massachusetts, providing for the purchase of three new steam colliers of American registry, ready for service, having a cargo-carrying capacity of 7,200 tons dead weight, at a cost not exceeding \$525,000 each. The bill called for an appropriation of \$609,126.45 for each of these vessels; but after an extensive hearing, held on January 23 last, the Committee concluded to reduce this estimate.

These three colliers are the *Everett*, the *Malden*, and the *Melrose*; they were built by the Fore River Shipbuilding Company at Quincy, Mass., for the New England Coal and Coke Company, a subsidiary of the Boston Consolidated Gas Company, which furnishes gas for Boston and vicinity. This company has been using Nova Scotia coal, but decided to use domestic coal instead, and entered into successful negotiations with the new tidewater railroad, now being built by Henry H. Rogers and others from Norfolk,

Virginia, to the virgin coal fields of West Virginia, whereby the railroad company agreed to build coal docks between Norfolk and the Jamestown Exposition if the New England Coal and Coke Company would furnish its own ships to transport the coal from Norfolk to Boston. Under this arrangement the three colliers were built, with the assurance from the railroad people that their road would be finished by January 1, 1908. The colliers are now ready for use, but the railroad and docks will not be in operation for another year. If the vessels are sold to the government, other colliers can be built by the coal company in time for the completion of the railroad.

When he was before the House Committee, in connection with the proposed purchase, Commander Cleland Davis, U. S. N., of the Bureau of Equipment, in charge of the coaling and transportation of coal, said he considered the purchase of these three colliers extremely desirable, if not absolutely essential, at this time. "The necessity of having our own colliers," said Commander Davis, "or our own available shipping to transport coal, was made manifest when it was contemplated to send the fleet round to the Pacific. In making those preparations, the Bureau of Equipment found we were absolutely dependent on foreign vessels, or foreign coal, else we could not send the fleet to the Pacific at all. This was due partly to the fact that we had not a sufficient number of government colliers, partly to the fact that there were no merchant vessels available. So we were completely at the mercy of foreign shipping. We had to employ foreign bottoms entirely, except for an occasional American vessel, which hardly counted at all." Commander Davis said the colliers were needed immediately "to continue to supply the fleet in the Pacific from this side, principally because coal is not available out there,—at least, it is of such poor quality that it is hardly fit for steaming purposes." He thought the three colliers well adapted for cruising with the fleet, under ordinary cruising speed of about 12 knots an hour. While colliers must usually travel at economical speed, Commander Davis thought it essential to have also a few high speed colliers, capable of cruising with the fleet under all circumstances. "The idea," he said, "is to have everything self-contained, so that the colliers can go with the fleet or meet it and coal the fleet wherever it may be." He thought there ought to be at least one collier of from 6,000 to 8,000 tons in time of peace for every two battleships and every two armored cruisers. That would, he thought, be a fair proportion; and there should be three or four larger, or special, colliers for the transportation of coal to coaling stations.

The eighteen colliers which the navy now owns are:

	Nominal speed knots.	Tons displace- ment.	When built.
<i>Abarenda</i>	9.	6,795	1892
<i>Ajax</i>	10.	9,250	1890
<i>Alexander</i>	8.75	6,181	1894
<i>Archusa</i>	10.	6,159	1893
<i>Brutus</i>	10.	6,600	1894
<i>Cæsar</i>	10.	5,920	1896
<i>General Alava</i>	10.50	1,115	1895
<i>Hannibal</i>	9.	4,000	1898
<i>Iris</i>	10.	6,100	1885
<i>Justin</i>	8.30	3,300	1891
<i>Lebanon</i>	10.	3,285	1894
<i>Leonidas</i>	8.50	4,023	1898
<i>Marcellus</i>	11.	4,315	1879
<i>Nanshan</i>	10.50	4,950	1896
<i>Nero</i>	9.	6,360	1895
<i>Pompey</i>	10.50	3,085	1897
<i>Saturn</i>	11.	6,220	1890
<i>Sterling</i>	11.	5,663	1881

The only four of these colliers considered available to accompany the fleet on a long cruise are the *Ajax*, the *Alexander*, the *Brutus*, and the *Nero*. In providing coal for the passage of the battleship fleet to the Pacific, it has required twenty-two vessels of foreign register and eight naval colliers, averaging about 4,500 tons each, for the total shipment of 130,000 tons needed for that voyage.

During the construction at the Fore River yards of the three colliers which the House Committee favors purchasing, government inspectors watching the construction of other vessels being built there called the attention of the Navy Department to that fact that these colliers were building. When the Navy Department last July began to think of sending the fleet to the Pacific, one of the Fore River inspectors asked H. S. Lyons, representing the New England Coal and Coke Company, to confer with Rear Admiral W. S. Cowles, Chief of the Bureau of Equipment, about putting these three colliers in the service of the government. They went into the matter with the idea of chartering the vessels, but the company found it could not compete with the foreign ships; and, although the President offered extra inducements to American ship-owners, the New England Coal and Coke Company withdrew from the competition. Rear Admiral Cowles then inquired whether the ships could be bought by the government, if Congress should provide the money. It was then that the New England company took up the matter, made an estimate of the cost, and concluded that, as the colliers were not needed for another year, which would give plenty of time to duplicate them, they could be sold to the

government for cost plus a fair profit. The contract price of the vessels was \$500,000 each. The original cost is estimated at \$515,000 apiece, and with interest charges the cost was estimated at \$550,000 for each ship. The first of the vessels went into the commission of the company in October, the second in December, and the third on January 11, 1908. The weight of the machinery of each vessel, wet, is 570 tons; dry, 475 tons; weight of hull and fittings, 2,830 tons, and the horsepower, 2,700. The Naval Committee was informed that the vessels were built at cost and at a loss to the Fore River Company.

The vessels were inspected for the government by the superintending constructor for the navy at the Fore River works, whose report declared the workmanship upon the structural work of the vessels to be excellent and in accordance with specifications. When Chief Constructor Capps was before the House Committee, he was asked by Chairman Foss whether, from all the information obtainable, he considered the three boats suitable for purchase for naval colliers, and replied:—

“For the transportation of coal at a moderate speed, or a speed practically the same as that of colliers now possessed by the navy, the colliers proposed are in my judgment satisfactory. They are, however, in no sense comparable with the two sea-going colliers now under construction. While the colliers under construction at navy yards have more than two thousand tons greater displacement, and they actually carry less cargo coal, yet they have more than five knots, or 50 per cent, greater sea-going speed. The sea-going colliers under construction in the navy yards unquestionably will cost more than they would have cost under contract. I mention these facts with respect to the colliers under construction and the *Everett* class to indicate clearly that there can be no comparison without considering fully the qualities of each vessel. One is a very high-speed ‘fleet collier.’ The other is a very moderate-speed cargo collier, which could accompany the fleet if the speed of the fleet did not exceed ten and a half or eleven knots. The extra speed of which these colliers are capable depends entirely upon the speed they may actually make in service; but, so far as our official information goes, the laden speed is ten knots; so that, in my judgment, as ‘fleet colliers,’ the vessels proposed are not suitable, but for the transportation of coal in the same manner as that now performed by our colliers, I should regard them as efficient and desirable vessels to purchase.”

The navy is in need of both kinds of colliers. Speedy 15-knot colliers are essential for an expeditionary force. A fleet accompanied by its supplies, coal, and stores must, in order to maintain the highest speed it can, have auxiliaries of approximately the same speed as the fleet. Speed equal to a fleet speed of 15 knots or more is entirely

unattainable by any colliers now in the navy or by colliers like those proposed to be bought. There is, however, a very distinct need for 10-knot colliers to carry coal to coaling depots.

The question of the size of colliers has occupied considerable attention before the House Committee. Representative Hobson was especially anxious to ascertain the views of department officials on this point. In response to questions from Representatives Foss and Hobson, the following points were brought out from Constructor Capps:—

“For a fleet of sixteen battleships it would require, roughly, 35,000 tons of coal to coal once; and if you have 5,000 tons in each collier, that would mean seven colliers. These seven could, in smooth water, coal fourteen battleships at once; whereas with 10,000-ton colliers, even with a battleship on each side, you would necessarily coal at only half the speed with which you could coal with these two 5,000-ton colliers. As a question of economy in transportation, however, it is absolutely true that the larger the vessel the more economically you can carry the cargo, especially if both are to proceed at high speed. With smooth water, one collier with effective hoisting apparatus—at least a collier especially designed—could probably coal one vessel on each side. You could not coal a greater number, considering the average-sized collier and the average-sized battleship; but if you had 10,000 or 12,000 tons in the collier, and the bunkers of the vessel being coaled would hold only 2,000 tons, the two vessels would only take 4,000 tons, and then you would have two others come alongside, and then again two others, so that there would be delay.

“I have personally been so much inclined toward large colliers that tentative plans were made and I was prepared to recommend that in future collier construction we depart from the 5,000-ton type and go right up to 10,000 tons; but members of the Board of Construction who had been in command of battleships informed me that in their experience even 5,000-ton colliers had proved less efficient for coaling purposes than small ones, and gave as the reasons what I have just stated as the objectionable features of the very large collier. If you had 30,000 tons of coal, in three 10,000-ton colliers, and the conditions of the sea were such that you could not afford to run the chance of crushing your collier by having a battleship on each side, so that you could only coal one battleship at a time, your 30,000 tons of coal would be tied up alongside of three vessels. If on the other hand, you had six 5,000-ton colliers, six battleships could be coaled at the same time.”

PROGRESS OF THE PAY BILLS

The status of the movement to increase the pay of the army and navy has greatly improved at the Capitol during the past month and the outlook for such legislation is good. While Congress may not, for reasons of stated economy, grant all that is desired, it seems safe to predict that the situation will be greatly improved by some very important legislation.

The pay proposition is before Congress in seven separate measures. They are:—

The Dick Bill (S. 4751), to equalize and fix the pay of the navy and marine corps; introduced January 31, 1908.

The Capron Bill (H. R. 2), to equalize and fix the pay of the army, navy, marine corps and revenue-cutter service; introduced December 2, 1907.

The Dick Bill (S. 27), same as the Capron Bill.

The Penrose Bill (S. 3865), to equalize and fix the pay of the army, navy, marine corps and revenue-cutter service; introduced January 14, 1908.

The Foss Bill (H. R. 17527), to equalize and fix the pay of the navy and marine corps; introduced February 19, 1908.

The Warren Bill (S. 4030), to fix the pay of the army; introduced January 15, 1908.

Section 5 of the Hale Bill (S. 3335), to increase the efficiency of the personnel of the navy, this section providing for an increase of 20 per cent in the pay of all commissioned and warrant officers, midshipmen, and pay clerks, and 40 per cent increase for the others; introduced January 9, 1908.

Out of this series of measures there have come into prominence during the past month two general propositions. One is the Warren army pay bill, which has already passed the Senate with amendments; the other is the Foss navy pay bill, which has been favorably reported to the House by Chairman Foss of the House Naval Committee. The bill of Senator Hale, in view of the fact that he wields strong influence as Chairman of the Senate Naval Committee, will probably figure prominently in the equation after the House acts upon the Foss bill.

Chairman Foss endeavored to have his Navy Pay Bill added as an amendment to the Naval Appropriation Bill,

when the latter was under consideration in the House on April 13. He did this with the hope that members of the House would consent to expedite matters, instead of waiting for the consideration of the pay question in its regular place on the calendar. Representative Madden of Illinois raised the point of order against the proposition, pointing out that it was new legislation and out of order on an appropriation bill. Chairman Foss admitted that the amendment was clearly subject to point of order. He said that while he did not know what the action of the House would be on the military bill, which proposes to increase the pay of the army, he believed there would be an increase in army pay this year. Mr. Foss explained that by the addition of his navy pay bill as an amendment to the naval bill, the navy would be placed on the same footing as the army, that the matter would go into conference, and if there was no increase in the pay of army officers, there would be none for officers of the navy. The chair sustained the point of order, and the navy pay proposition will now have to come up for separate consideration either in its regular place on the calendar or through the adoption of some special rule.

THE WARREN BILL

The Warren bill was favorably reported to the Senate on January 30, with amendments from the Senate Military Committee, and was passed by the Senate with still other amendments on March 6. It now pends before the House. Its text in the form in which it passed the Senate,—the eliminated portions being in parentheses and the added portions in *italics*,—is as follows:—

"That the pay of officers of the army is hereby increased as follows: Of lieutenant-generals, (ten) *five* per cent; of major-generals (and), *ten* per cent; of brigadier generals, fifteen per cent; of colonels, lieutenant-colonels, and majors, twenty per cent; of captains, first lieutenants, and second lieutenants, twenty-five per cent; and the pay of cadets at the Military Academy is hereby increased twenty-five per cent; Provided, That section 1267 of the Revised Statutes is hereby repealed; *Provided further, That nothing in this section is intended to increase or change or shall be construed as increasing or changing the present pay or allowances of any officer in the United States Navy, and the effect of this section shall only be upon the officers of the army herein enumerated; and section 13 of an Act entitled 'An Act to reorganize and in-*

crease the efficiency of the Personnel of the Navy and Marine Corps of the United States, approved March 3, 1899, shall not be construed as changing the pay of any naval officer by reason of the provisions of this Act, which shall apply solely to the pay of officers of the Army.

"(Sec. 2. That the provisions of section 1569 of the Revised Statutes of the United States, which authorize the President to fix the pay of enlisted men in the navy, are hereby extended so as to authorize the President to increase the pay of all enlisted men of the army.)

"Section 2. That upon the death of any commissioned officer or enlisted man of the army while in the line of duty, there shall be paid to the widow, or to the widow and children of such officer or enlisted man, or to his legal representative, if there be no widow or children, in addition to the arrearages of salary then due, an amount equal to six months' of the salary which he was enjoying at the time of his death.

"Section 3. That the average pay (now established for) of enlisted men of the army (shall not be) *is hereby increased (by not more than) forty per centum.*

"Section 4. That nothing herein contained shall be construed so as to reduce the pay or allowances now authorized by law for any officer or enlisted man of the army; and all laws or parts of laws inconsistent with the provisions of this Act are hereby repealed."

Before the House had an opportunity to act upon the Warren Bill as passed by the Senate, the Army Appropriation Bill, with the provisions of the Warren Bill inserted as an amendment, was, on April 6, passed by the Senate. The Army Bill has been in conference between the two Houses since April 9, and if agreement can be reached for the retention of the Army pay amendment, it will not be necessary for the House to act upon the original Warren Bill.

This arrangement of the bill presents in convenient form the full text of the Warren Bill, both as reported to the Senate and as finally passed by that branch of Congress. All of the words within parentheses were stricken out of the bill by the Senate, and all of the additions to the measure by the Senate are shown by italics. The Warren Bill applies simply to the army and proposes that for army officers there shall be a graded increase of pay ranging from five per cent for lieutenant-generals to twenty-five per cent for junior officers, and that for the enlisted men of the army the pay shall be increased forty per cent.

It will be seen that the Warren Act, which provides for army officers, reduces the increase provided by the

original Dick-Capron Bill from ten per cent, for lieutenant-generals, to five per cent; and that it reduces the proposed increase of pay for major-generals from fifteen per cent, as urged by the Dick-Capron Bill, to ten per cent; that the Warren Bill as passed by the Senate completely eliminates captains; but that aside from these changes it is similar to the Dick-Capron Bill, which proposes the following increases: Generals and lieutenant-generals, ten per cent; major-generals and brigadier-generals, fifteen per cent; colonels, lieutenant-colonels, and majors, twenty per cent; captains, first lieutenants, and second lieutenants, twenty-five per cent; cadets at West Point, midshipmen, and warrant officers of the navy, as well as line cadets of the revenue-cutter service, twenty-five per cent. The Dick-Capron Bill is the one which was originally agreed upon last summer by the Treasury, War, and Navy Departments, and received the approval and endorsement of President Roosevelt, providing for the equalization and fixing of the pay of the army, navy, and marine corps, and revenue-cutter service. It was introduced in the Senate December 2, by Senator Dick of Ohio, and in the House by Representative Capron.

One very significant feature of the action of the Senate was the removal of the clause that would have extended to the President the right to fix the pay of soldiers, just as he does that of sailors. This action brings this matter under the control of Congress, the Senate considering that the right of fixing the pay of enlisted men should not be delegated to the executive.

THE FOSS BILL

While the Warren pay bill deals, as passed by the Senate, only with the army, it is very important to the navy, because it serves as the basis of the increase for the navy carried by the Foss Bill, which is corollary to the Warren measure. The object of the Foss Bill is to equalize and harmonize, on the consistent basis of length of service, the pay of the two great arms of the organized force of the government,—the military and naval services. The Foss Bill was reported, without amendment, in the following language:—

"That hereafter the pay and allowances, except forage and mileage, which shall be governed by existing law, of all officers of the navy and marine corps shall be the same as the pay and allowances of officers of corresponding rank in the army.

"Sec. 2. That the pay of midshipmen, warrant officers, mates, and paymasters' clerks is hereby increased twenty-five per centum; Provided, That the pay and allowances

of midshipmen after graduation at the Naval Academy shall be the same as that provided for second lieutenants of the army, not mounted.

"Sec. 3. That the pay of all commissioned, warrant, and appointed officers, and enlisted men of the navy and the marine corps on the retired list shall hereafter be based on the pay, as herein provided for, of commissioned, warrant, and appointed officers, and enlisted men of corresponding rank and service on the active lists.

"Sec. 4. That nothing herein contained shall be construed so as to reduce the pay or allowances now authorized by law for any commissioned, warrant, or appointed officer or any enlisted man on either the active or retired list of the navy or marine corps, and that all laws or parts of laws inconsistent with the provisions of this Act are hereby repealed."

OBJECT OF THE FOSS BILL

The Foss Bill is similar to the new Dick Bill, and relates wholly to the navy side of what may be called the original Dick-Capron Bill, which included both the army and the navy, as well as the marine corps and the revenue-cutter service. The Capron Bill was referred to the House Military Committee, which has reported out with the army appropriation bill a provision for the enlisted men of the army only, it being their intention to consider the proposition as to officers separately. In the Senate, there was the separate bill introduced by Senator Hale for the navy and the separate bill of Senator Warren for the army. Senator Dick later introduced his pay bill covering the navy, and it was then that Chairman Foss introduced the same bill in the House. If the Capron Bill goes through, the others will not be necessary; but if the other measures fail, the navy will still be cared for in the Foss Bill, since it provides for all officers of the navy who would not receive an increase by Senator Warren's Bill. The Warren Bill provides for the army and carries the line, medical, and pay corps of the navy with it, by establishing the basis under which the Foss Bill would equalize the pay of the officers of the navy with those of the army. The Foss Bill also provides for all other commissioned, warrant, and appointed officers and midshipmen, as carried by the original Dick-Capron Bill.

The law now provides that the pay of the commissioned officer of the marine corps and of the line and the medical and pay corps of the navy shall be the same as that provided for officers of the army of corresponding rank and length of service; and Chairman Foss says, in his report to the House, that "It seems only just and equitable that

all commissioned officers, of whatever branch or corps, should be placed on the same footing as to pay and allowances." At present the naval constructors, civil engineers, chaplains, and professors of mathematics are the only commissioned officers not on this basis and are all receiving different rates of pay. An advantage of the Foss Bill is that it simplifies the navy pay table and places all officers on an equal footing at the beginning, provides for similar consideration as they pass on in grade, and in this way removes one of the most frequent sources of discontent and unrest.

The report of Chairman Foss to the House says:—

"The varying rates of pay that are in force to-day for line officers, naval constructors, civil engineers, professors of mathematics, and chaplains are all eliminated, without injustice to the vested rights of anyone. As rank is a necessary adjunct to every commission, it follows that the first commission that an officer receives assigns a certain rank to him, and it is most appropriate that the rank should form the basis of pay and all pay tables should be constructed with this point in view. It then naturally follows that similar rank should receive similar pay, and on this basis this bill was framed; and it is believed that the army pay should form the basis and all officers of whatever branch or corps should be paid according to their corresponding rank with officers of the army.

"The pay of midshipmen, warrant officers, mates, and paymaster clerks is increased by twenty-five per cent in this bill, because they are not commissioned officers and have no officer of corresponding rank in the army. To carry out the intention of this bill by placing all officers on a footing with those in the army, provision is made that midshipmen after graduation from the Naval Academy shall receive the pay and allowances of second lieutenants, not mounted, which is that given military cadets after their graduation from West Point. The midshipmen are underpaid, and it is in the interest of the service and the country that they should be paid sufficient to meet actual and reasonable expenses which are forced upon their positions.

"It has been shown that the great majority start out in debt, and on the present pay it is impossible to live as it is intended our officers should do and keep free of debt, no matter how economical they may be. Your committee believes that such conditions should not exist and that ample means should be provided the officers of both the army and navy to enable them to maintain their position in a creditable manner."

SERVICE ITEMS

THE DELAWARE AND NORTH DAKOTA

Ever since the laying of the keel of the 20,000-ton battleship *North Dakota* at the Fore River Shipbuilding Company at Quincy, Mass., in December and of her sister ship, the *Delaware*, at the Newport News Shipbuilding Company, in January, the *North Dakota* has been in the lead and constantly gaining over her competitor in construction. The *North Dakota* is still ahead, but only gained a fraction of one per cent over the *Delaware* during the month of February, as against a greater gain over her rival during each of the preceding four months. The percentage of completion of each vessel according to the latest and all previous "progress" reports made officially to the Bureau of Construction and Repair of the Navy Department may be shown as follows:—

	North Dakota.	Delaware.	Per Cent of North Dakota Ahead.
September 1, 1907...	0.00	0.00	0.00
October 1, 1907....	0.00	0.05	0.00
November 1, 1907...	4.23	2.33	1.90
December 1, 1907...	7.84	5.08	2.76
January 1, 1908....	12.70	7.05	5.65
February 1, 1908....	17.50	9.20	8.30
March 1, 1908.....	21.40	12.77	8.63

These figures show that while the *North Dakota* was 3.57 per cent ahead of the *Delaware* on February 1, the former battleship was 3.90 per cent ahead of the *Delaware* on March 1, a gain of 0.33 per cent for the work on the *North Dakota* during the month of February. This gain was much smaller than that which the *North Dakota* made during the month of January, which increase was 2.65 per cent. In other words, the *Delaware* progressed more rapidly during February than during any previous month since she has been under construction.

THE MICHIGAN AND SOUTH CAROLINA

Work is progressing on the *Michigan*, at the yards of the New York Shipbuilding Company at Camden, New Jersey, and across the Delaware River, at the Cramp's yards at Philadelphia, on the sister ship *South Carolina*. Both of these battleships were authorized by the Act of Congress approved March 3, 1905, and advertisements were let for them upon the completion of the plans, on March 28, 1906, Congress having required the presentation of these plans.

The contract for the *Michigan* was let July 20, 1906; her keel was laid December 17, 1906; the first frame was erected January 22, 1907; the first large casting received

April 17, 1907; and her contract calls for her completion in forty months, or by November 20, 1909.

The contract for the *South Carolina* was let July 21, 1906; her keel was laid December 18, 1906; first frame erected January 28, 1907; first large casting received on January 14, 1907; and her contract calls for her completion in forty-one months, or by December 21, 1909.

The Department expects the *Michigan* will be finished by August 6, 1910, and the *South Carolina* by February 5, 1910. Approximately twenty months, or about one-half of the contract time has expired, and each vessel is almost half done, with the *Michigan* in the lead. The following figures taken from the official "progress" reports given out by the Bureau of Construction shows the percentage of each vessel toward completion on the first of every month during their building:—

	South Carolina.	Michigan.
March 1, 1908.....	39.05%	45.00%
February 1, 1908.....	36.40	41.60
January 1, 1908.....	33.76	37.90
December 1, 1907.....	31.68	33.50
November 1, 1907.....	28.83	29.10
October 1, 1907.....	24.66	25.70
September 1, 1907.....	21.70	24.00
August 1, 1907.....	19.59	21.20
July 1, 1907.....	17.48	19.40
June 1, 1907.....	14.57	16.40
May 1, 1907.....	11.21	13.10
April 1, 1907.....	9.38	11.10
March 1, 1907.....	7.74	8.29
February 1, 1907.....	6.32	5.90
January 1, 1907.....	5.08	3.01
December 31, 1906.....	3.14	1.51
November 1, 1906.....	0.60	0.85

SOME CREDITABLE TRIALS

A number of new American cruisers have been undergoing a series of successful trials within recent weeks. In their 4-hour runs the scout cruiser *Chester* registered 26.52 knots an hour, and the *Birmingham* 24.325 knots; their contracts called for 24 knots. The *Chester* made 22.8 knots an hour on its 24-hour run, and the *Birmingham* 22.615 knots.

The *North Carolina*, a 22-knot vessel according to contract, made 22.48 knots an hour on her 4-hour run.

On April 6 the Board of Inspection and Survey telegraphed from Fort Monroe, Va., to Secretary Metcalf that the *Montana*, an armored cruiser, whose contract calls for 22 knots an hour, completed successful trials, the speed for her 4-hour trial being approximately 22.26

knots, at 27,489 horse-power; and 20.48 knots, at 19,102 horse-power, for her 24-hour endurance trial.

NAVAL INCREASE

Secretary Metcalf called the attention of the House Naval Committee, on February 19, to the fact that the Naval Appropriation Bill reduces the Department's recommendation for the increase of the navy to provision for two battleships of the *Delaware* class, ten torpedo-boat destroyers of the type recently contracted for, and eight submarines, and that the Committee has not included, in amounts to be appropriated under the head of "Naval Increase" for the coming fiscal year, the additional funds for undertaking the construction of these vessels during the coming fiscal year.

The plans for the battleships and torpedo-boat destroyers to be authorized are ready, and Secretary Metcalf has informed Chairman Foss that—

"It will be entirely practicable to undertake their construction within three months after the passage of the Act containing provision therefor, and the work can be pushed rapidly to completion. It has been the Department's endeavor for some time past to increase the rapidity of construction of vessels for the navy, and, if possible, to do away with the many delays caused by the non-delivery of material, especially in the matter of ordnance and armor, and without doubt contracts can be placed and the work commenced on the vessels very shortly after July 1 of this year."

In this connection Secretary Metcalf has laid before the House Committee letters from the Chiefs of Construction and Ordnance, giving the amounts necessary to be included in the forthcoming appropriation bill to cover payments during the fiscal year ending June 30, 1909. These letters are approved by the Department, and the estimates are declared by Secretary Metcalf to be absolutely necessary for the best interests of the navy. He strongly urges that the funds be appropriated. "If they are not," he informed the Committee, "there will be a year's delay in ship construction and a shutting down of work at the shipyards and Government factories, as work on the vessels now under construction is rapidly approaching completion."

The estimates sent to Congress in December, under the heading of "Naval Increase," followed the exact procedure of previous years and only included estimates to continue work on new vessels already authorized. Since there is no prospective delay in the preparation of plans for the vessels which Congress is about to authorize, these plans, having been already developed, according to Chief Constructor Capps, "in all essential respects," it now becomes the duty of Congress in the forthcoming bill to pro-

vide funds for the vessels to be authorized. Under the head of "Construction and Machinery" for the vessels to be authorized the following supplemental estimates are submitted:—

For each battleship of about 20,000 tons displacement, similar to the <i>Delaware</i>	\$1,500,000
For each torpedo-boat destroyer	400,000
For each submarine boat	250,000

These estimates for each of the proposed battleships, destroyers, and submarines are to cover payments to be made during the fiscal year ending June 30, 1909, and are based upon the following limits of cost, exclusive of armor and armament, these limits of cost being for the battleships and destroyers the same as those provided in the last annual appropriation bill:—

Limit of cost, under hull and machinery:	
For 20,000-ton battleship	\$6,000,000
For torpedo-boat destroyer	800,000
For submarine torpedo-boat	350,000

The estimates prepared under the direction of Rear Admiral Mason, Chief of the Bureau of Ordnance, for the ordnance outfits for the proposed vessels are as follows:—

Two battleships:—	
Armor (each)	\$1,955,000
Armament (each)	1,800,000
Ammunition (each)	611,000
Total (each)	\$4,366,000
Total for two	\$8,732,000
Ten destroyers at \$100,000 each	1,000,000
Eight submarines, \$25,000 each	200,000
Grand total	\$9,932,000

The Department does not ask for all of this at once. It estimates that there will, however, be required during the fiscal year ending June 30, 1909, \$3,000,000 for the armor and \$4,500,000 for the armament of these vessels, and \$100,000 for ammunition and other supplies,—a total of \$7,600,000 for the ordnance outfits of the proposed vessels for the year. The estimates of Rear Admiral Mason were given "with the understanding that work on these vessels will be hurried to completion, owing to the small number of vessels now underway and consequent scarcity of work at navy-yards and private concerns, and to the fact that plans and specifications for the vessels are now ready; and, further, that most of the armor and armament will be delivered during the first year." These estimates are exclusive of the \$2,000,000 deficiency under the

appropriation for armor and armament for the increase of the navy, to which the Department's attention was recently called, and which was caused by Congress failing to appropriate for that amount when the appropriation bill for 1907-08 was under consideration.

THE NEW SUBMARINES

During the month of February, the seven submarines the contract for which was recently awarded to the Electric Boat Company and now designated as Nos. 13, 14, 15, 16, 17, 18, and 19, were laid down by the Fore River Shipbuilding Company in their yards at Quincy, Massachusetts. Work on all of them has been progressing rapidly. Nos. 13, 14, and 15 were twenty-three per cent toward completion, No. 16 was 16.30 per cent, and Nos. 17, 18, and 19 were each 7.50 per cent toward completion, on March 1, 1907.

PROPOSED CORPS OF DENTAL SURGEONS

The House Naval Committee, on March 13, authorized Representative Dawson to make a favorable report to the House of Representatives on the bill (H. R. 16620) introduced on February 6 by Representative Butler of Pennsylvania, to provide a corps of dental surgeons in the Navy. No change was made by the Committee in the measure which would authorize President Roosevelt to appoint not exceeding thirty dental surgeons to serve the officers and enlisted men of the navy and marine corps. The bill proposes that they be attached to the Medical Department of the Navy, with the rank and pay of acting assistant surgeons in the navy. They must be graduates of standard dental colleges, trained in the several branches of dentistry, within the age limits of twenty-four and thirty-five years, of good moral character and professional standing, must pass physical and professional examination, and their appointments would be for a term of years and revocable at the pleasure of the President. A proviso attached to the bill declares that the operation of the Act shall not displace the dentist now employed at the Naval Academy.

The amount of dental disease existing in the navy is considerable. Reports from only two of the stations where dental treatment is being given under emergency makeshift circumstances embraced some 4,631 cases of almost every character of dental work. This gives a fair idea of the navy's need in regard to dental services. Dental surgeons are needed in the navy quite as much as, if not more than, in the army, which service enjoys free treatment by dentists employed in accordance with law; and it seems an unjust discrimination against the enlisted

men of the navy not to provide similar dental work, especially in view of the universally recognized economic importance of sound teeth in military service.

MARINE CORPS INCREASE

The service is and for a long time has been seriously in need of an increase of men and officers for the United States Marine Corps. There are now sixty-seven per cent of the members of that corps outside of the United States serving on board ship or in the tropics. The remaining thirty-three per cent are on duty in the United States, and among this number are ten young officers sick from arduous work in the tropics. Many officers have already served two years in the tropics. A number of those aboard the battleship fleet have completed their three years, and there are no officers to relieve them. In consequence many of the best young officers have been resigning, or wish to resign, because of the hard duty and slow promotion. The men are doing the same duty—sixty-seven per cent outside and 33 per cent inside the country. At nearly all posts in the United States they are doing duty day on and day off, and this means that a man on duty, in all weather, winter and summer, actually walks eight hours a day, sleeps with his clothes on; and, on the day he goes off guard, has to attend drills, clean garrison, and do general police work. In the army it is forbidden by regulation for a soldier to go on guard more than once in five days.

The marine is on every piece of naval land of the United States. There are now 1,016 marines in Cuba; 1,122 in the Philippines; 2,237 in cruising vessels, including about 1,500 with the battle fleet; 252 in the Panama Canal Zone, in addition to those at Culebra, Guam, Porto Rico, Hawaii; 124 at Peking; 13 at the Yokohama Hospital; and others in Alaska and the Midway Islands. While two-thirds of the marines are on foreign service and the time of many of these has expired, there are only one-third of the total number that are in this country to take the places of those whose time has expired abroad. The present strength of the corps is 8,771 enlisted men.

When Brigadier General George F. Elliott, Commandant of the Corps, was before the House Naval Committee, on February 13, he said, in explanation of the situation, that the required strength is 15,036 men, but that at this time an increase only of 3,000 men was requested. With this object in view, General Elliott laid before the Committee a draft of a bill embracing the views of the Department. After careful consideration of the measure, the Committee on March 13, decided to grant an increase of 1,580 officers and men, and accordingly directed Representative Olcott of New York to report favorably

to the House the Elliott Bill, as modified by the Naval Committee. The House Committee allows for one Major General Commandant, in lieu of the present Brigadier-General Commandant, and then recommends an increase of three majors, thirty-five captains, fifteen first lieutenants, twenty-eight second lieutenants, six assistant quartermasters with rank of captain, two assistant paymasters with rank of captain, and fifteen hundred enlisted men including non-commissioned officers. This is not all the Administration sought, but it will be an important step in the right direction if the Committee recommendations pass Congress.

General Elliott also sought an increase of two brigadier-generals, one colonel, one lieutenant colonel, and a number of other officers and men, which the Committee declined to allow at this time. There has been no increase in the number of officers allowed by Congress since March 3, 1903, and no increase allowed in enlisted men since March 3, 1905. The number allowed then was much lower than requested. Since those increases were allowed, the scope of the duty of the corps at sea, in our insular possessions, and within the continental limits of the United States has considerably increased the requirements of the corps. The Navy Department has fixed the complements of ships, and the marine corps is required to furnish the stated number of men for those ships. About seven hundred effective men will have to be provided for that purpose this year. In order to get them, at least one thousand men will have to be recruited.

When a marine officer, after two years abroad in the tropics, comes home, he is immediately put on duty and cannot be granted any leave. Within twelve or fifteen months he is returned to the tropics, for a tour of duty of from two to two and a half years. The result is that many officers are sick, and this imposes additional duty on others. If the increased number of officers is allowed by Congress, it will give each officer about as much time in the tropics and aboard ship as in the United States.

According to testimony given before the Naval Committee in February, by Commander Cameron McRae Winslow of the Bureau of Navigation, there will soon go into commission ten ships—the *Mississippi*, the *Idaho*, the *New Hampshire*, the *California*, the *South Dakota*, the *North Carolina*, the *Montana*, the *Chester*, the *Birmingham*, and the *Salem*; for those ships, according to the table that he submitted, there will be required a total of 7,604 men. There are available for such duty 1,452; the total shortage is 6,152. The proportion of marines aboard ship is about one-eighth of the force of bluejackets, so that when these ships are placed in commission about seven hundred extra marines will have to be provided. To pro-

vide these marines without the proposed increase for the marine corps would so deplete the force at navy-yards that it could not possibly be regarded as efficient.

PRIZES FOR COAL ECONOMY

During the stay of Rear Admiral Evans at Rio de Janeiro, he urged upon the attention of the Department a very commendable plan to increase the efficiency in performance of the motive machinery of our warships, both as to economy and speed, and to prevent minor breakdowns. Declaring necessity existed for "doing something" in this direction, he wrote from Rio to Secretary Metcalf, on January 13, that he had put in force General Fleet Order No. 2 of that date, directing that cash prizes be distributed for economy in the expenditure of coal. While most of the provisions of this order could be carried out within the fleet, the Department's action was absolutely necessary in establishing the rewards required for the success of the venture. The Department concurred in the views submitted by Rear Admiral Evans, and on February 13 Secretary Metcalf asked Congress for an appropriation of \$2,500 for these prizes. "While the proposed plan involves an additional expenditure of \$2,500," said Secretary Metcalf, in forwarding this recommendation, "the considerable saving in the consumption of coal will more than offset the amount of money to be expended in cash prizes."

Rear Admiral Evans, in his letter of January 13 to Secretary Metcalf, says:—

"The performance of the ships of this fleet as to economy of steaming at moderate speed has so far been very eccentric and unsatisfactory, showing serious lack of training of personnel; and, in my opinion, it is absolutely necessary that steps should be taken to increase the interest and knowledge shown by officers and men in the whole subject. To do this no better way can be devised, to my mind, than to adopt some method of competition similar to that which has worked so well in advancing the performance of ships in gunnery. Cash prizes should be established as follows:—

Best battleship or armored cruiser in—	
Atlantic Fleet, yearly.....	\$1,000
Pacific Fleet, yearly.....	1,000
Best torpedo-boat destroyer in—	
Atlantic Fleet, yearly.....	200
Pacific Fleet, yearly.....	200
Total yearly.....	\$2,400

"For the first year such prizes should be to the best ships in each fleet; but after the scheme has once been tried, they should not be paid unless the best ship attains a certain percentage of efficiency. The scheme being an untried one, it is not thought that we have as yet suf-

ficient knowledge to justly lay down what such percentage should be."

Rear-Admiral Evans expressed the belief that increased attention to economy in coal consumption resulting from cash prizes would soon result in a saving of at least five tons of coal daily, when steaming, for each battleship and armored cruiser, and at least a ton daily for each destroyer. He believes these to be very conservative estimates, and informed the Department they would result as follows, from vessels now or soon to be in commission:—

	Daily saving tons.	Average cost.	Total daily saving.
21 battleships, 5 tons each.....	105	\$4	\$420
12 armored cruisers, 5 tons each	60	4	260
16 destroyers, 1 ton each.....	16	4	64
Total daily saving.....			\$744

According to this estimate, less than four days' steaming on the part of these forty-nine vessels would save enough coal to pay the total yearly prizes. "It should, therefore," Rear Admiral Evans explained, "be easy to pay this money in the saving resulting from four days' steaming, and to save at the rate of \$20.00 per day's steaming for every large ship and \$4.00 per day for each destroyer for every day's steaming she does over four in each year. The saving would be very great."

Under the plan proposed, advancement in rating will be given to men who show themselves specially competent in the work; and after the yearly competition it should be possible aboard the winning ships to advance such men one rate in advance of the competition of their probationary period in the lower rate, provided such probationary service as is uncompleted is made up in the next higher rate before another advancement is possible. For a battleship or armored cruiser the number of single shares in these prizes would be 440, the value of each share being \$2.10. As complements of different ships vary and as ships are sometimes short of or in excess of complement, the details of the distribution would be left to each commanding officer, with directions to observe the general plan. For each destroyer winning the prize, each share would be assumed to have the same value of \$2.10, and the men of each rate would receive the same number of shares as for a battleship. This would insure the men of each rate getting the same prize, whether serving on board a battleship or a destroyer.

TO PROTECT THE UNIFORM

Secretary Metcalf, on February 14, transmitted to Chairman Foss, of the House Naval Committee, for con-

sideration a bill, which Mr. Foss introduced in the House on March 11, to provide for the protection of the uniform of the naval and military service of the United States. This is an important step in the direction of having the uniform of the American soldier and sailor accorded the consideration which it should everywhere be given. The great majority of the people of the country do entertain respect for this attire; and theatrical proprietors generally have made no discrimination against a man in the service on account of his uniform. But there have been isolated instances which have aroused high ranking officers of the service.

The purpose of the bill introduced by Mr. Foss at the request of the Navy Department is, first, to prevent the wearing of the uniform by unauthorized persons; and, second, to provide that persons who are entitled to wear it shall not be subjected to unjust discrimination on shore. From many protests received by the Department, it appears that both of these undesirable practices are now prevalent in certain sections, and the need for legislative action is, therefore, real and urgent. The bill provides that after its passage it shall be unlawful "for any person not actually serving at the time in the Regular Army, Navy, or Marine Corps to wear the prescribed uniform or any distinctive part of the uniform," except as provided in the measure. The penalty prescribed for violations is a fine of from fifty to one hundred dollars, or imprisonment from ten to thirty days, or both, upon conviction.

A proviso in the bill declares that this prohibition and penalty shall not apply to the organized land or naval militia, while on duty, or to "such persons in the service of the United States as are required, by or in pursuance of law, to wear a prescribed uniform similar in design to that of the Army, Navy, or Marine Corps." There is one other section to the measure, providing that "The Secretary of War or the Secretary of the Navy may, in his discretion, grant written permission in special cases for members of reputable theatrical companies or others to wear such uniform for a stated period and under such restrictions as he may prescribe, and this permission shall be withdrawn if at any time the Secretary of War or the Secretary of the Navy may deem such action expedient."

Concerning this section, Secretary Metcalf said, in a letter to Mr. Foss, that its constitutionality, in so far as concerns discrimination against the uniform in the various States, has been carefully considered by the Department, and the decision reached to submit the proposition in the form in which it has been introduced in Congress.

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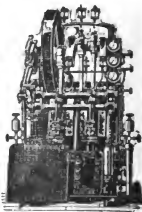
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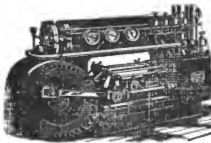
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A CONTINUING NAVAL PROGRAM

EDITORIAL

NAVAL APPROPRIATION BILL

THE HAGUE TREATIES

THE CRUISE TO THE PACIFIC

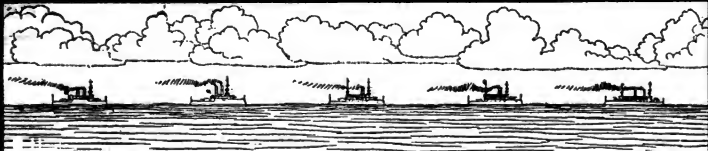
FOREIGN NAVIES

FOREIGN NAVAL CORRESPONDENCE:

THE BRITISH NAVY IN 1909

SUBMARINES AND MOBILE DEFENCE

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THE NAVY

Vol. II

WASHINGTON, D.C., MAY, 1908

No. 4

NOTE AND COMMENT

ARRANGEMENTS have been completed for the firing test to be made upon the old monitor *Florida*. She will be taken from the Norfolk Navy Yard, where she has been prepared for the experiment, to a designated spot in the lower Chesapeake Bay, during May, and fired upon from one of the 12-inch breech-loading guns of her sister ship, the *Arkansas*. Admiral Mason announces that no attempt is to be made at penetration, the sole object being to learn the effect of the impact from a 12-inch gun upon turret bearings, fire control, and gun mounts and sights. The 12-inch projectile will be fired from the *Arkansas* with just the exact amount of energy to deliver the blow without penetration against the side of the *Florida*. A modern 12-inch gun has been mounted in the off-side of the *Florida's* turret, separated by a specially constructed bulkhead from an older gun on the side of the turret against which the shot is to be fired. There will also be a torpedo test, consisting of the firing of a modern super-heated turbine torpedo into a compartment that will be closed and filled with water. The test was inspired by the British bombardment of the old battleship *Hera*, which was sunk off Kentick Knock last fall in firing tests, the main difference being that officers on the *Arkansas* are under pledge not to sink the *Florida*.

AFTER a week of Senatorial debate, more than half of which was devoted to the contest over the question the granting of four or two new battleships for the 1908 naval building program, the Naval Appropriation Bill passed the Senate on April 27. It had previously passed the House on April 6, in practically the form in which it had been reported from the House Naval Committee. The Senate added one hundred and seven amendments to the measure. On April 29 the House disagreed to all of the Senate amendments, and the bill was sent to conference, where these disagreements between the two houses are to be adjusted. The estimates of the Navy Department aggregated \$125,041,349.80. The House Committee recommended \$103,467,518.43. The House allowed

\$105,405,768.43. The Senate Naval Committee recommended a net increase of \$7,579,031.45, making the total reported to the Senate \$112,884,791.88. The Senate added \$7,000,000 for beginning work on the two new battleships authorized, three additional colliers, and other increases, which brought the total of the bill, as it entered conference, up to more than \$123,000,000, or, substantially, the amount asked by the administration.

More interest was manifested in the naval situation during the progress of the Naval Bill through the two houses than in any other Congress since the opening of the Spanish war ten years ago. In each branch, the contest raged around the battleship program. The General Board, Secretary Metcalf, and President Roosevelt united in a request for four battleships of the *Delaware* class. Neither of the naval committees was willing to allow more than two. Representative Hobson of Alabama in the House, and Senators Beveridge of Indiana and Piles of Washington in the Senate, led the fight for four battleships.

The opposition to four ships was led, in the House, by Chairman Tawney of the Appropriations Committee, Representatives Burton of Ohio, and Williams of Mississippi. Chairman Tawney favored only one ship, but this was defeated by a vote of 205 to 65. The four-battleship project was rejected by a vote of 199 to 83. A counter-proposal for three battleships was killed by a vote of 268 to 64. These overwhelming expressions of House sentiment left the battleship program as urged by the House Committees—two *Delawares*. Majority Leader Aldrich and Chairman Hale led the Senate opposition to the four ship scheme. By a vote of 50 to 23 the Senate allowed only two ships. Both branches being united on the two-ship program, this increase is now assured as it cannot be changed in conference.

Although the House favored two ships, it failed to appropriate a cent with which to begin their construction. Chairman Foss of the House Committee was not in favor of making such an appropriation. He contended that he simply followed the usual custom of authorizing new ships one year and making the first money available for them

the following year. But the Department was very anxious to begin these new ships immediately after July 1, and urged the Senate Committee to appropriate \$7,000,000 to begin work on their construction, machinery, armor, and armament. This request reached the committee after the bill had been reported, and was offered as an amendment on the floor by Chairman Hale, the Senate adopting it.

The most significant development of the action taken by the Senate was the formal announcement by Senator Allison of Iowa, the powerful chairman of the Senate Appropriations Committee, that he favored a permanent building program of two battleships every year. "I believe," said Mr. Allison, "that we ought under our present situation and the circumstances that surround us to make provision for two battleships each year for at least some years to come. I believe that with the provisions now before us under the plan of two ships per annum we will make rapid and regular progress in the building up of our navy." Senator Hale expressed entire agreement with Mr. Allison.

While it did not so disclose itself in the debate, it is understood that Mr. Allison put forward his two-ships-a-year project as a compromise that is satisfactory to the administration. If the Allison proposal is rigidly followed for the next ten years, the United States will exceed the German navy in growth, and by 1920 we shall have forty-nine battleships, provided we lose none that we now possess. The German program provides for three new battleships in each of the years 1908, 1909, and 1910, two in 1911, and one each year from 1912 to 1917, a total of seventeen capital vessels. At the rate of two ships a year from 1908 to 1917, inclusive, we would add twenty first-class battleships to our fighting line in the next ten years, and they should all be completed by 1920. Considered in this light, Congress has not done badly by the navy. Two important advances have been made: first, the indication thus given of a permanent building program of two ships a year; second, the action of the Senate in appropriating \$7,000,000 for the two new ships authorized, thereby voting the money for ships the year they are authorized, instead of waiting until the following year before making the financial advances.

The bill provides that at least one of these battleships shall be built at a government navy yard. The other battleship may be also constructed in a government yard, at the discretion of the Secretary of the Navy. The bill allows ten new torpedo-boat destroyers of the highest practicable speed, to cost, exclusive of armament, not more than \$800,000 each. The Senate provided that they shall be built by contract, not more than two by any one contractor. Other vessels allowed by both Houses

in the increase program are two fleet colliers, each of not less than 12,500 tons cargo and bunker coal capacity, one to be built in a government yard; these colliers to cost not over \$1,800,000 each, and \$1,500,000 to be appropriated to start work on both. The Senate decided one should be built in a Pacific Coast yard; this must be settled in conference. Another item to be considered in conference is the Senate provision authorizing the purchase of three additional colliers, already built, having a cargo capacity of 7,200 tons each, at a total cost of \$1,800,000.

Both houses agreed upon the building of eight submarines to cost in the aggregate \$3,500,000. The House appropriated \$1,000,000 for beginning their construction; the Senate increased this to \$3,000,000. The Senate also adopted an amendment authorizing the building or purchase of a destroyer or torpedo boat of the "semisubmerged" type, the essential feature of which is to have some portion of the hull or superstructure always above the surface, such vessel to cost not over \$400,000, and two small vessels of this type, to cost not over \$22,500 each, and appropriating \$445,000 for all three. The bill carries \$9,832,962 for construction and machinery of vessels previously authorized; \$7,000,000 toward armor and armament of vessels authorized; another \$7,000,000 for the two new battleships just authorized; \$400,000 for completion of new vessels authorized; \$500,000 for new trunked-in ammunition hoists for battleships and armored cruisers; making a total of \$31,477,962 authorized by the Senate for new construction, instead of the \$18,677,962 authorized by the House.

Another matter to be settled in conference is the increased pay for the navy. The House bill contained no such provision, its naval committee having reported out the Foss Pay Bill. The Senate approved its own committee amendment, proposing a twenty per cent increase for all active and retired commissioned officers, warrant officers, midshipmen, and pay clerks in the navy, and civilian professors and instructors at the Naval Academy, and a ten per cent increase for all active and retired noncommissioned officers, mates, petty officers, musicians, and enlisted men. The latter were not given a larger increase because they would then be receiving more than enlisted men in the army. The Senate added an amendment abolishing the use of irons in the navy. Still another important item is the allowance of \$130,000 for gunnery exercises.

Both houses agreed upon \$300,000 for fire-control instruments for ships; \$300,000 for torpedoes and appliances; \$650,000 for torpedoes and converting torpedo boats using 3.55-meter to 5-meter torpedoes; \$250,000

for replacing the *Maryland's* 40-calibre guns with 45-calibre 8-inch guns; \$415,000 for replacing 3-pounder and 6-pounder guns, mounts, and sights on battleships and armored cruisers by 3-inch 50-calibre, or larger, guns, mounts, and sights; \$350,000 for converting Mark III 12-inch guns to Mark IV guns; \$5,000,000 for coal and its transportation; \$450,000 for the establishment of coal depots; \$100,000 for developing the naval station at Olongapo, Philippine Islands; \$5,788,000 for repairs and changes in the *Brooklyn*, *Alabama*, *Illinois*, *Iowa*, *Kearsarge*, *Kentucky*, *Maine*, and other vessels, including the transformation of the *Baltimore* and *San Francisco* into mine-laying ships.

One of the most important additions made to the bill by the Senate is the authorization for the establishment of a strong naval station at Pearl Harbor, Hawaii, with coal-ling sheds, machine shops, and dry dock, at a total cost of \$2,000,000, of which \$1,000,000 is made immediately available.

With true bureaucratic fervor, the Scientific American persists in standing by its misuse of the term "freeboard," in an editorial article concerning the

"Freeboard" reconstruction by the Japanese of the battleship *Iwami*, formerly the Russian ship *Orel*.

We reproduce below a diagram showing the original *Orel* and the ship as now reconstructed. The Scientific American, after a tribute to the Japanese, as a practical people, making use of the lessons taught by the battle of Tsu-Shima, says, of this reconstruction, that,—

"In the first place, they cut down the freeboard of the vessel by the height of one deck, cleaning off the superstructure altogether. They abolished the fighting tops,

removed the huge and lofty pilot house, removed six turrets, with their twelve 6-inch guns, and brought all the main armament, except the forward pair of 12-inch guns, down on to the main deck, which has the same freeboard, 18 to 20 feet, that is found in the ships of the Japanese, the British, and our own navy. . . . In place of the twelve 6-inch guns in these six turrets, the Japanese mounted six 8-inch guns on the main deck, in position shown in our engraving. . . . Formerly the gun-deck of the *Iwami* was pierced for 12-pounder guns. The lower sills of the ports were not over nine feet above the water, when the ship was in a fully loaded condition." All this by way of confounding the critics of American ships.

Chief Constructor Capps, who may be presumed to know the correct meaning of "freeboard", defined it, in his testimony before the Senate Naval Committee, as follows: "Freeboard is the distance from the water-line to the upper, or weather, deck of the ship."

The superstructure, or spar deck, of the *Orel*, which the Scientific American refers to as the ship's freeboard amidships, was not her freeboard in any accurate use of the term. If that use of it had been accurate, and "freeboard" was the distance from the water to the highest deck, the Scientific American would have to list the *Orel* as a ship with a freeboard of about 36 feet, and the "freeboard" of American ships would increase suddenly to about 30 feet. The cutting down of the lofty superstructure, the lightening of masts, etc., is precisely what the line critics of our warships have been urging for years. They want higher freeboard, but they cannot, like the general public, be misled into thinking that high freeboard means "lofty superstructure." As a cold matter of fact, the freeboard of the *Iwami* is exactly the same as was that of the *Orel*.

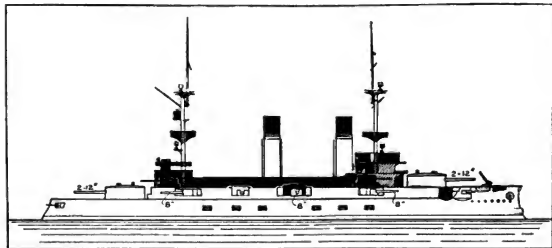


DIAGRAM SHOWING THE *IWAMI* AS SHE WAS (IN BLACK) AND AS SHE IS (IN WHITE)

(From the *Scientific American*)

MAY

THE NAVY

1908

PUBLISHED MONTHLY BY

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Vol. II

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No. 4

THE YOUTH OF THE FLEET

If the first and most gratifying result of the cruise of the battle fleet to the Pacific Coast is the entire safety with which the journey was accomplished, the second—which perhaps ought to be bracketed with the first—is the superb condition in which the ships have made the first section of their long trip. That the propelling machinery in all the ships should be in much better condition when the fleet reached Magdalena Bay than when it left Hampton Roads is the proper and usual result of competent management of machinery under continuous working.

But the fact that this splendid result was obtained by young line officers and not by a special engineer corps is a very high tribute to the efficiency of young men in handling so complicated a machine as a modern battle ship. The work of these young line engineers and of the warrant machinists who assisted them proves conclusively, and once for all, the wisdom of amalgamating the engineer corps with the line.

For the skillful navigating of the ships of the fleet we have to thank, for the most part, young officers who were the navigators of the ships. And when we come to the highly successful target practice at Magdalena Bay, we have again to pay tribute to the young gunnery officers who directed the practice, and the young enlisted men who carried it out to a successful completion. Technical responsibility rests first, of course, upon the flag officers and the captains. But if things go right with the fleet, it is because the young navigator, the young line engineer, the young gunnery officer, and the young seaman handle intelligently and effectively the material of ships and guns.

A CONTINUING NAVAL PROGRAM

The compromise arranged between the President and the Senate with regard to the naval increase program is a fortunate one, if it succeeds in impressing upon Congress and upon the public the necessity of making a regular and liberal increase in the fleet by the addition of large battleships of the most modern type. It was a great step in advance when Congress authorized the *Delaware* and the *North Dakota* with so great a displacement as 20,000 tons. Heretofore the tendency of Congress to dictate the size of battleships has been of distinct disadvantage to the navy. We have two new examples of this bad policy in the *Idaho* and the *Mississippi*, which, although they have been pretty wisely planned for their displacement of 13,500 tons, are still not such effective units as we ought to be adding to our navy in the present advanced state of naval architecture. While our naval constructors, as THE NAVY has freely admitted, are not beyond making mistakes, they are infinitely more competent than Congress to say what size and type of ship ought to be laid down in a given year, to keep the American navy abreast of foreign navies. It is to be hoped that congressional recognition of the *Dreadnought* era has done away with the earlier disposition of the naval committees to take to themselves the prerogatives of naval experts.

Whether or not the agreement said to have been entered into by Senator Hale of the Naval Committee and Senator Allison of the Appropriations Committee to the effect that Congress would, for some years to come, authorize and appropriate annually for two big battleships of the most advanced type, will be carried out in succeeding Congresses, remains to be seen. To secure this result, general public interest in, and recognition of, the necessity of this course should be aroused and brought to bear upon future Congresses.

Two big battleships a year for ten years, beginning with the two just authorized, would make no more than a reasonable addition to the American fleet. This ten-year period would end with 1917, and the ships authorized that year should be in commission not later than 1920. We should have then, including the *South Carolina* and *Michigan*, which are fairly to be classed with the *Dreadnought* class, twenty-four of these big ships. The two ships just

named, together with the *Delaware* and *North Dakota*, are the only battleships now building.

We have now twenty-five battleships afloat; but this does not mean that if the suggested program were carried out, we should, in 1920, have forty-nine battleships, for by that time at least nine now borne on the lists would have to be considered obsolete. And it is probable that even more than nine would be unprofitable members of the fleet by that time. The *Indiana*, *Massachusetts*, *Oregon*, and *Iowa* are already obsolescent; and another five years is pretty certain to make them wholly obsolete, so far as concerns their taking part in fleet action with modern ships. Their speed, low freeboard, and low coal capacity will restrict them, almost of necessity, to coast defence work, and this is unlikely to play any prominent part in future naval battles. Naval experts have come to consider a battleship obsolete when she is twenty years old. This age limit would retire not only the four ships just named, but the *Kearsarge*, *Kentucky*, *Alabama*, *Illinois*, and *Wisconsin*. The *Kentucky* and *Kearsarge* might be remodelled so as to make them count as effectives up to, say, 1915; but it is very doubtful if with their low freeboard and small displacement they would repay the expense of reconstruction.

Forty battleships in 1920 is no more than a reasonable provision; that number would give us a slight superiority over Germany, and probably a distinct preponderance over the Japanese navy. These two are the only ones that it now seems necessary for us to consider.

SIR WILLIAM WHITE'S OPINIONS

The joy with which a certain newspaper interview with Sir William Henry White, formerly Chief Constructor of the British navy, has been received in some quarters betrays a careless reading of that interview. Sir William White left his position with the British Admiralty because British officers abroad made complaint of the soft-ended ships he was designing, when foreign ships were much better protected. It can be easily understood, at any rate, why in this interview Sir William White should attack the *Dreadnought*, designed by his successor, Sir Philip Watts; but it is difficult to understand why no one should perceive that he has attacked also

the American *Delaware* plan. Apropos of the *Dreadnought* design, the reporter of the interview referred to asked "what reasons were given by the British Admiralty for reverting to an abandoned type of armor in the case of the *Dreadnought*," and Sir William replied:

"They decided to have an armament of ten 12-inch guns. They had, therefore, to provide a great weight of armor for the redoubts in which these great guns and their turn-tables are placed. That was a necessity, you see, to protect the armament. Then they found that with a given size of ship, with a given total weight of armor available, they could not continue to protect so large an area on the side. If you have to put in 12-inch guns, you must protect with armor the towers in which they are placed. In the *Connecticut* or *King Edward* there are four 12-inch guns; therefore you have two towers. But when you get ten 12-inch guns, as in the *Dreadnought* or the *North Dakota*, you are obliged to take armor from the sides and put it on the towers."

If the foregoing statement from Sir William is not more an attempt to discredit the plans of his successor than an attempt to make sagacious technical criticism, then a millstone had no hole in it.

Sir William White and his opinions have been so much praised by the adherents of the Bureau of Construction and Repair and the partisans of the near-perfectness of all our battleships that he could do nothing less than to say that American battleships are in all respects the equal of foreign battleships of the same type and date. He has been quoted by Chief Constructor Capps for his participation in the design of the *Royal Sovereign* class in 1889, and Constructor Capps, in his reply to criticisms on our warships, printed as Senate Document 297, declared that the water-line armor distribution of the *Royal Sovereign* class is strictly comparable with those of the majority of the ships in the Atlantic fleet.

From this point of view, it is interesting to see Sir William White explaining that the armor distribution on the *Royal Sovereign* was wrong, and that he discarded it in all his later designs.

"Now this belt armor, in my opinion, is only a fetish. If the ship is upright and at rest in still water, and you have that thick armor belt at the water line, that portion of the ship would of course be well protected; but that portion, as a matter of fact, is the most difficult to hit. If the shots fall ever so little short, they will ricochet and turn up. If they are high in elevation, of course they will pass over the thick armor belt."

"That waterline is never the real waterline when the ship is at sea. If the ship is moving, the waves formed

by her motion in still water will bury that thick armor—that waterline. If there are waves passing the ship, they rise above that thick armor. If the ship heels over ever so little, this belt goes under water, no matter where it is placed.

"These considerations led me, twenty years ago, to recommend to the English Admiralty that they should abolish the thick armor. And my design, which was used exclusively for a period of sixteen years, made the armor a uniform thickness from the main deck down.

"My first designs which were accepted had the thick waterline belt. But in 1888 I recommended the other course. In the *Royal Sovereign* class the armor rose about nine to ten feet above the normal waterline and was about five and one-half feet below. That is to say, the side armor was fifteen to sixteen feet in width. Naval opinion of that day was exactly that which Reuterlahl now holds. And so we had armor at the water line ten inches thick and that went three feet above the water line. For the rest of the height it was five inches thick. Previously, there was no armor above the belt. The armor was all at the water line. The Germans have built ships within the last twelve years like that,—simply a belt and no side armor above.

"What I wanted to do, instead of having a 10-inch armor belt at the water line and a 5-inch armor belt above that, was to distribute that weight uniformly over the same area. And in the *Majestic* class—which was the original of all modern battleships and which I designed about 1893—I was allowed to make the armor on the hull uniformly nine inches thick, and did so. So that there is a wall armor of the same depth as in the *Royal Sovereign* class and of the same weight, but it had a uniform thickness of nine inches all the way up."

In other words, Sir William White, while praising American ships, says in effect that their armor scheme is all wrong, for no American battle ship afloat conforms to the armor scheme of the *Majestics*.

We make the above quotations, not with the intention of tying up to Sir William White as an authority whose opinion is law, but merely to show what other commentators appear not to have noticed,—that the expert they praise so highly is condemning the armor scheme of all our battleships now afloat.

Of turret ammunition hoists, Sir William White said:—

"Taking it as a matter of fact again, if you were to take all the armored ships of the world at the present time on the effective list, you would find the very great majority of them with nothing but direct hoists. It is not peculiar to American ships at all."

This way of talking about "direct hoists" is a mere juggling with words and a misrepresenting of the facts.

It is perfectly true that the majority of turret hoists in foreign navies are direct, or straight, hoists; but it is not true that those direct hoists are like the American direct and open hoists. Foreign direct hoists are "trunked-in" or enclosed within a metal tube, and furnished, both at the top and in the handling-room below, with automatic doors which absolutely prevent any burning powder falling from the turret into the handling room. The fact that our own Ordnance Bureau has asked a large appropriation this year for enclosing ammunition hoists on several American ships shows that that Bureau is well aware that American "direct hoists" are not like "direct hoists" abroad.

THE COST OF WAR TRAINING

Comment in the press on two recent accidents in the British navy—the running down and sinking of the torpedo boat destroyers *Tiger* and *Gala*, while engaged in night maneuvers—appears to miss what seems to us the real point. Of course it is in a general way unfortunate to have a warship sunk with a loss of life; but for a navy which is aiming at the highest possible efficiency, it is far from unfortunate that its torpedo boat destroyers, engaged in night maneuvers against an enemy, can approach so close to the hostile ship without being perceived that if the case had been one of actual warfare the two torpedo boats which were actually run down in practice would almost infallibly have destroyed the enemy ship. If the *Tiger*, which was attacking the cruiser *Berwick*, and the *Gala*, which was working against the *Attentive*, had been engaged in actual warfare and had sunk those two cruisers at the cost of their own floating, the Admiral to whom the destroyers belonged would have counted it an exchange highly profitable to himself. That these two destroyers were run down, under the actual conditions, demonstrates that the destroyer force of the British navy has acquired, by this dangerous night practice, two capacities of the highest military value. They have acquired skill in approaching close to a supposedly hostile ship without being discovered; and the officers and crews of these small vessels have acquired a dash and boldness and willingness to take possible fatal risk, which is quite as essential as mere skill. Within a few years the British navy has engaged in about a thousand night attacks between different sections of its fleet; and the very mishaps to the *Tiger* and the *Gala* show that the torpedo fleet has admirably learned its lesson.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

1909—A GLANCE FORWARD

LONDON, March 31, 1908.

What will be the British naval increase program for 1909? This question is occasioning even more concern in naval circles throughout England and the Continent than the program for the present year of 1908. After all, this year's proposal of one battleship of the improved *Dreadnought* type, an armored cruiser of the *Invincible* type, six small unarmored cruisers, sixteen destroyers, and approximately six submarines is not so bad. It does not destroy the two-power standard; it does not move our country from her present position of naval supremacy.

It is the action of the Lords of the Admiralty, in their struggle with the guardians of the Treasury, in 1909, that will tell the tale and reveal to the world whether our navy is to lose any of its present two-power prestige. While this year's program is disappointing, wherever there is a sincere interest in the adequate development and maintenance of the power of the royal fleet, much of this gloom has worn off during the past few weeks on account of repeated declarations from official sources that there will be absolutely no departure from traditional naval policy. Lord Tweedmouth, in submitting the estimates for 1908, said: "Whether, and to what extent it may be necessary to enlarge it next year, must depend upon the additions made to their naval force by foreign Powers. His Majesty's Government have every intention of maintaining the standard of the British Navy, which has hitherto been deemed necessary for the safeguarding of our national and imperial interests." Later, in a communication to Lord Cawdor, the explanation was made by Lord Tweedmouth that the latter's words,—"any reasonable probable combination of foreign Powers,"—during the naval debate in the House of Lords two weeks ago, "were intended as an extension, and not a restriction, of the definition of a two-power standard."

Lord Tweedmouth and his colleagues have not been blind to the activity of the German naval authorities, and are fully aware of the unanimous decision of all of the great naval powers to build all of their proposed battleships of the all-big-gun type. Even without reference to

the archives of the Office of Naval Intelligence, they could not avoid knowledge of these facts. Knowing them, and then declaring, in the same breath, that there will be no departure from traditional ideals of naval strength, what is the only fair inference that can be drawn from the recommendation for the building of only one of these modern leviathans under this year's Estimates? Is it not safe to assume that the Sea Lords have something "up their sleeves"?

But what is that something? The number of ships to be authorized in 1909 will—the Sea Lords have said it officially—depend upon "the additions made to their naval force by foreign powers." What are these additions? The German program for 1908 comprises three battleships of the improved *Dreadnought* type,—or, rather, of the improved *Nassau* class,—one armored cruiser of the improved *Invincible* type, besides two small unarmored cruisers and twelve destroyers. The American program for 1908 will probably be two battleships of the *Delaware* type, ten destroyers, and eight submarines, besides several colliers. The Japanese program for 1908 will probably be two improved *Dreadnoughts*,—or, rather, more highly developed *Akis*,—and two powerful armored cruisers of the *Invincible* type. Italy, Russia, and France have accepted the principle of the *Dreadnought*, but their rate of building and other difficulties do not make them such serious factors in the equation as are Germany, America, and Japan.

The only logical British reply to these ambitious foreign programs will be the authorization in 1909 of three powerful new battleships and two or three equally powerful battle-cruisers of improved *Invincible* type. But there is more than this involved in the decision of our Admiralty to await the realization of present "paper" programs of other leading powers,—particularly the complete disclosure of the fighting qualities of the *Nassau* and her sister ships—the *Ersatz Sachsen*, which has been building at the Weser yard at Bremen since 1906 and will soon be launched; the *Ersatz Baden*, laid down in 1907 at the Krupp Germania yard at Kiel; and the *Ersatz Württemberg*, also building since last year at the Vulcan yards, Stettin. The essential characteristics of these four great

ironclads—the number and arrangement of their all-big-gun turrets—are believed to involve important departures from those of any other ship in the world.

Germany is veiling the chief features of these ships with secrecy. In this regard she is studiously following the policy observed by our own Admiralty in connection with the building of the original *Dreadnought*,—a policy which gave Great Britain a handicap of two years over any other nation except her Oriental ally, Japan, in the incorporation of the *Dreadnought* principle into the fighting line of the fleet. Germany has been building the *Nassau*, and her sister ship, the *Ersatz Sachsen*, since practically the latter part of 1906, and is believed to aspire toward a gain of two years over rival powers in the development of certain new ideas. These innovations do not involve a departure from the principle of single-calibre guns of great fighting power. The best obtainable information, however, is that they do involve a tremendous increase in the concentration of gun power through intensification in the application of the all-big-gun principle.

In spite of conflicting reports respecting the *Nassau's* guns and turret arrangements, there are most insistent, and apparently well-authenticated, reports from both Wilhelmshaven, as well as from Berlin, that the *Nassau* will mount not less than sixteen big guns of the 11-inch type. German official circles refrain from denying or confirming this report. Nevertheless, subsequent corroboration may demonstrate to the world that the *Nassau*, at date of commissioning, will be the most powerful ship afloat if equipped with these sixteen guns in an eight-turret arrangement. Our original *Dreadnought*, the three *Temeraires*, and the three new *St. Vincents* were each planned with a main armament of ten 12-inch guns, five turrets to a ship. The American *Delawares* and their successors under the 1908 program are to be five-turret, ten-gun ships. The Japanese *Abis* are each to have four 12-inch and twelve 10-inch guns; and the two 21,000-ton Japanese battleships of the new program are believed to have been planned to mount twelve 12-inch guns, in a six-turret arrangement. But the *Nassau*, with eight turrets, each mounting two 11-inch guns, would be mathematically stronger in gun power than any other ship afloat at the time of her completion in 1909. These guns will represent one of the latest Krupp developments, it is understood, being fifty calibres in length, weighing forty or forty-one tons, and firing a shell weighing from 750 to 770 pounds, with from 2,800 to 2,900 foot-seconds initial velocity, and an energy of 42,000 foot tons, or over.

The authorities at Whitehall have channels of information superior to those of most outsiders for the ascertain-

ment of foreign ordnance characteristics, and it cannot be fairly assumed that the Sea Lords or British ordnance experts are blind to reports, now so insistent, respecting the *Nassau*. Before time for the presentation of another Naval Budget, in February, 1909, a great deal will be known, even by the general public, about the *Nassau* turret arrangement. The vessel has been launched already, and, before summer is over, it will be possible to witness a gradual unfolding of its armament plans. Working drawings may be kept under lock and key in Admiralty offices a long time without the disclosure of secrets; but when a ship has once left the stocks and is brought alongside for the placing of armor and armament, these secrets, so far as external ship appearances are concerned, are soon known to the world. Battleships cannot be built and hidden within lockers; they are made for fighting purposes, and must be extensively maneuvered if they are to be worthy of a place in the fighting-line.

Granting, if only for the sake of argument, that the British Admiralty does not know the *Nassau* armament plans, it would be well worth a year's respite, with only a single new British battleship in sight for 1908, before committing His Majesty's Government to a heavy increase. This is especially true when every one knows, or should know, that the Tweedmouth plans for 1908 will not enable any combination of two other powers to move the British Fleet from its present position of supremacy under the Cawdor standard. The more reasonable supposition is that the Sea Lords are fully aware of the number and character of guns to be given the *Nassau*. The present able Director of Naval Intelligence, Captain E. J. W. Slade, has probably already obtained that information, even if it were impossible of acquisition by Captain C. L. Ottley, his predecessor prior to November 1st last. Captain Slade is the officer whose work at Greenwich College, and subsequently as director of the Naval War College, has earned him high praise; Captain Ottley, who had charge of Naval Intelligence before him, introduced to the attention of Anglo-Saxon ordnance students the English version of Captain Vladimir Semenoff's splendid work on the ordnance lessons of the naval battle of Tsu-Shima.

Whether or not the British Admiralty has verification of the sixteen-gun reports respecting the *Nassau*, the moment such proof is obtained it will become incumbent upon our ordnance expert and naval constructors to make some unmistakable reply to the latest Teuton achievement. And, even if the Germans are not successful in all they are reported to be attempting in the armament of the *Nassau*, there is no reason why British progress and inge-

nity should not be planning an innovation, which, if it cannot be used as a reply to Germany, can compel Continental Europe and other foreign nations to take the defensive and seek a reply to British naval genius.

There are strong reasons for believing that the Admiralty, as a result of lessons obtained from the actual service of the *Dreadnought*, has been for some time looking ahead toward changes in design, which, however, do not involve departure from the all-big-gun principle. This intention has been indicated in the increased displacement of the *Dreadnought's* successors now on the stocks or completing. The *Dreadnought* displaces 17,900 tons; each of the three *Temeraires*, 18,600 tons; and the *St. Vincents* were planned for a displacement of 19,250 tons each, but one of them may turn out even larger. There are three of these *St. Vincents*. The first, the ship from which the type-name is obtained, is building at Portsmouth dockyard; the second, known as the *Collingwood*, is building at Devonport dockyard. It has not yet been announced that either of these two will displace more than 19,250 tons; but it is known that the third of these ships,—the name of which was to have been the *Rodney*, but which is now known as the *Vanguard*,—shortly to be laid down at the yard of Vickers, Sons, and Maxim at Barrow-in-Furness, will be a slightly larger vessel. Her displacement was originally 19,250 tons, like that of the *St. Vincent* and *Collingwood*, but this is to be increased by changes in design. The same intention of change of design is evident in connection with the armored cruiser to be built under the 1908 program. The three *Invincibles*—which are all-big-gun cruiser-battleships mounting eight 12-inch guns each—have a displacement each of 17,250 tons. Only a few days ago, Lord Tweedmouth dropped a significant hint respecting the 1908 armored cruiser, when he said:

"In the first place, there is the third *St. Vincent* to be laid down at Portsmouth. There is also to be laid down what I may call a cruiser-battleship, another *Invincible*, with improvements. The House will excuse me from saying what they will be; I think we had much better keep that to ourselves."

Just why there should be an increase of displacement for the *Vanguard*—the third of the *St. Vincents*—is not explained. There may even be some significance in the fact that the Admiralty has about chosen the name of *Vanguard*—instead of *Rodney*, as originally intended—for this battleship. As recently as six months ago there

was some uncertainty as to how these vessels would be named. It was generally supposed that the flag officers directly associated with Nelson would be commemorated in the naming of these ships. With this idea in view, the two dockyard-built ships, *St. Vincent* and *Collingwood*, were so named. The belief then was that the third of the *St. Vincents* would be named after Lord George Brydges Rodney, the British Admiral who, in 1780, broke through the French squadron under Count de Guichen, near Martinique, and two years later fought Count de Grasse in the Dominica Channel, West Indies, where, after a severe battle, he won a signal victory that led to an armistice and the peace of 1783. For these feats he was granted a pension of £2,000, and, upon his return to England, was created a peer and hailed as a national hero. Instead of naming the third of these ships after Rodney, the Admiralty have now decided to style it the *Vanguard*, which seems to be as significant of new development and naval pioneering and superiority as was the name *Dreadnought*, which has been upon the lips of naval students more than that of any other vessel since the exploit of the famous little Ericsson cheese-box of a monitor at Hampton Roads revolutionized naval shipbuilding.

The *Vanguard* is also interesting because she is being built at the Barrow-in-Furness yard of the Vickers concern, which is building one of the two great Brazilian ironclads, about which there has been so much talk. The other of these South American craft is under construction at the Elswick yards of the Armstrongs, who received the contract for both ships, but sublet one to the Vickers firm, which is now substantially controlled by Armstrong interests. The Vickers firm, it is true, made the lowest—£628,000—of the seven tenders submitted for the construction of the *Vanguard*; but if any of the Brazilian ideas are to be incorporated into that ship, the successful bidders for the *Vanguard* were probably in a better position than their competitors to make a lower bid for the new British ship, being the builders of one of the Brazilian vessels.

The barbettes of these South American vessels are to be of special construction. It has been repeatedly reported that they will mount 13.5-inch guns, four on each ship. The guns are being manufactured by the Armstrongs; and when it was first ascertained that this British firm was making such powerful ordnance, the report was widely circulated that all of the *St. Vincents*—none of which had then been laid down—would carry 13.5-inch guns. There is nothing now to indicate that the *St. Vincent* or the *Collingwood* will carry heavier armament than

12-inch guns. What the armament of the *Vanguard* will be is problematical. It will probably be ten 12-inch, with certain of the Brazilian features incorporated.

It is not certain that the battleship to be built under the 1908 program,—and this is the ship which Lord Tweedmouth has mentioned as having a greater displacement than the *St. Vincents*—may not embrace all of the new developments since the original *Dreadnought* was built, which have been gradually incorporated into the designs of her six successors of the *Temeraire*, *St. Vincent*, and *Vanguard* type. An increased displacement for the *Vanguard* over the 19,250 tons of the *St. Vincent* would make the former substantially a 20,000-ton battleship. If the 1908 British battleship is to have greater displacement than the *Vanguard*, one of two views may be taken,—the 1908 battleship will either mount more than ten 12-inch guns, or, if she mounts only ten pieces of ordnance, they will be closely akin in calibre, length, and power to the 13.5-inch guns which the Armstrongs are now developing. The chances may favor the adoption of the 13.5-inch calibre as the ultimate British reply for the present to the German *Nassau*. A vessel with ten of these guns should be able to stand off safely in battle outside of the range of any number of the new 11-inch Krupp guns with which the *Nassau* will probably enter the German fighting line.

SUBMARINES AND MOBILE DEFENCE

PARIS, March 31, 1908.

Admiral Fournier has been occupying the limelight a great deal recently in the elaboration of his theories respecting the use of submarine craft for purposes of national defence. He had command of the French naval maneuvers during the summer of 1906 in the Mediterranean, directing the movements of three squadrons and some 13,000 or 14,000 men for more than a month. His report of nearly two years ago attracted attention largely through the propositions expounded respecting the lessons gleaned from the actions in which the under-water flotilla participated off Bizerta, Toulon and Marseilles.

In the naval lexicon of Fournier there seems to be almost no such word as "battle-ship." His hobby is the submarine; he contends that these small craft are remarkably efficient for mobile coast defence work; and that the strong arm of the French navy of to-day is the submarine, with still larger submarines for use along extensive shore lines where marine landings by an enemy

may be attempted between fortifications and other coastal centers of defence. A few months ago Admiral Fournier lectured, before a meeting of the Cercle Militaire, in this city, on new phases of naval warfare growing out of the use of submarines, torpedo craft, torpedoes, and mine-laying.

Since then there has been wide discussion of his views. These are now all the more interesting in view of the fact that the Greek navy is confronted with reorganization at a cost of about fifteen million (15,000,000) francs, under the advisory direction of Admiral Fournier. It seems that his views have stirred up considerable trouble among the Hellenes. While officers of the Greek navy, like those of most of the larger naval powers, have come to a fuller realization of the efficacy of the submarine, they have been strongly impressed with the evolution of the all-big-gun battleship idea and its working out according to various national ideals of the improved *Dreadnought* principle of construction in Great Britain, Germany, America, Japan, Italy, and Brazil.

In this regard Greek officers are not unlike those of the Russian and Spanish navies, who insist that, when those two countries reorganize their remaining remnants of lost sea power, the single-calibre battleship must be incorporated in the project. The Slav and the Spaniard realize better than any other peoples the folly and misfortune of naval unpreparedness. They are the victims of the only two naval wars of the past decade. Since their defeats they have made futile efforts to rebuild their lost "armadas," but have done little more than develop "paper" programs, which do not seem to have appealed with any efficiency to national pride or to royal exchequers.

Far-sighted Greek statesmen recognize the danger of the position of their country near the troublesome Balkans and in the buffer region of the Near East, where there will certainly be a struggle before many years over the political and commercial rivalries of British, German, Russian, and Austrian interests. These leaders know that Greece must be prepared to protect her own frontiers and the extensive coast lines of the Hellenic archipelago. Progressive officers of the little Greek navy, feeling the pulse of maritime development, are advocating the reorganization of their diminutive fleet along modern lines. Many of them are opposed to the suggestions made by Fournier that their government concentrate all its attention upon the building of submarine and torpedo craft. As a result of the opposition thus developed, Fournier has been invited to visit Athens for a discussion of the situation and reply to the criticisms levelled at his recommendation that

the Greek government spend little or none of its money upon battleships.

While there is great respect here in France for the signal abilities of the Admiral and appreciation of the value of his contributions toward the solution of the problem of national defence, the feeling is strong that efforts like those of Fournier have had a great deal to do with the gradual decadence of the French sea force, which a few years ago ranked second only to that of energetic Albion across the Channel. Fournier would, of course, never concede this to be the truth. He rather argues that the introduction of the submarine has given France a more favorable situation. He contends that the development of the French mosquito fleet is the one and only factor that has checked the naval decay of his country.

In his recent address before the Cercle Militaire, the Admiral gave his interesting analysis of the position of France, which has forty-one submarines afloat and nearly sixty building,—more submarines in service to-day than any other great power possesses of such craft, both built and building,—besides over two hundred and seventy torpedo boats, afloat and on the stocks. When France first embarked upon her experiment with under water craft, other nations looked on, casually, as unbelievers. But Fournier now remarks with satisfaction that other nations have trailed along in the path pioneered by France and have likewise made substantial progress in submarine development.

Maneuvers and practice with these craft have, in his opinion, revolutionized certain well-established principles of warfare and made it possible for smaller nations, like Greece and the Scandinavian kingdoms, to defend their tortuous and extensive shore-lines more effectually and at smaller expense than under past conditions. He believes that with a few submarines in the Baltic, the people of Sweden may command the respect of any belligerent in Scandinavian waters; and that these and torpedo craft are also the ideal kind of floating defence for the islands of the Ionian archipelago. Under the ideals of Fournier, fully elaborated, French coasts would literally swarm with small naval vessels of these types. They would be distributed around strategic centers along the fringe of France, at Corsica, Algeria, Tunis, and Morocco. He advocates the building of separate divisions of sea-going submersibles, with a wide radius of action capable of co-operating with the larger battleships and cruisers, but intended to act independent of them for extensive cruises in the North Sea, the English Channel, and the Mediterranean.

But Fournier is wrong when he contends that France by submarine development has checked the decay of her naval power. This can only be accomplished by the addition of heavy fighting units whose armor and armament accord with progressive naval ideals. The position of the French navy to-day is directly attributable to the miserable regime of former Minister of Marine Pelletan and his eccentric Boilemian experiments with the right arm of national defence, to the failure of the government to provide steady additions to the battleship fleet, and to the spasmodic elaboration of the programs of 1900 and 1906—the only two battleship programs which are worth while—and the disheartening delays connected with the building of these ships. Four of the six battleships of the *Démocratie* class, authorized in 1900, are just about going into commission; one of them, the *Vérité*, has not yet had her final trials; and severe criticism is heard of structural defects of a radical character in some of these vessels.

The 1906 program of six battleships of the *Danton* type bids fair to make a better showing, although an entire year elapsed before the keel of any of these was laid down. The *Danton* and *Mirabeau* were started at the government yards at Brest and Lorient last year, and their four sister ships are now finally under way. The present Minister of Marine, M. Thomson, is doing all within his power to maintain the efficiency of the service for which he is responsible, and has inaugurated a number of reforms, in spite of almost insuperable obstacles to be overcome. He is the one bright figure in the French naval regime, but is fighting without much spontaneous help from the Senate or Chamber of Deputies. He is having the administration concentrate its energies this year upon the completion of the heavier ships previously authorized,—principally the *Dantons* and the *Waldeck-Rousseaus*,—and has been heavily handicapped by the incubus of the bundle of woes and shortcomings inherited from the do-nothing Pelletan regime.

What France has needed to "check" naval decay is a shipbuilding program like that of Germany,—steady, adequate, prompt, confident, and alert. Fournier's favorite small craft will undoubtedly serve France well, and render the blockade of ports or landing parties more difficult of accomplishment than under old conditions; but the strong first-fighting line is absolutely essential for the destruction of an enemy's fleet at sea, while the submarines and torpedo boats, acting in cooperation, guard the coast. The hattle fleet is needed for the crushing blow of decisive engagement that would be necessary if a strong naval antagonist were to be brought speedily to terms.

THE PRESIDENT'S MESSAGE ON THE BATTLESHIP PROGRAM

On April 14, the President sent the following message to Congress:—

"To the Senate and House of Representatives:—

"Let me again urge upon the Congress the need of providing for four battleships of the best and most advanced type at this session. Prior to the recent Hague conference it had been my hope that an agreement could be reached between the different nations to limit the increase of naval armaments, and especially to limit the size of warships. Under these circumstances I felt that the construction of one battleship a year would keep our Navy up to its then positive and relative strength, but actual experience showed not merely that it was impossible to obtain such an agreement for the limitation of armaments among the various leading Powers, but that there was no likelihood whatever of obtaining it in the future within any reasonable time. Coincidentally with this discovery occurred a radical change in the building of battleships among the great military nations, a change in accordance with which the most modern battleships have been or are being constructed of a size and armament which doubles or more probably trebles their effectiveness. Every other great naval nation has or is building a number of ships of this kind; we have provided for but two, and therefore the balance of power is now inclining against us. Under these conditions to provide for but one or two battleships a year is to provide that this nation instead of advancing shall go backward in naval rank and relative power among the great nations: Such a course would be unwise for us if we fronted merely on one ocean, and it is doubly unwise when we front on two oceans.

"As Chief Executive of the nation and as Commander-in-Chief of the Navy there is imposed upon me the solemn responsibility of advising the Congress of the measures vitally necessary to secure the peace and welfare of the Republic in the event of international complications which are even remotely possible. Having in view this solemn responsibility, I earnestly advise that the Congress now provide four battleships of the most advanced type. I cannot too emphatically say that this is a measure of peace, and not of war. I can conceive of no circumstances under which this Republic would enter into an aggressive war, most certainly under no circumstances would it enter into an aggressive war to

extend its territory or in any other manner seek material aggrandizement.

"I advocate that the United States build a Navy commensurate with its powers and its needs, because I feel that such a Navy will be the surest guarantee and safeguard of peace. We are not a military nation. Our Army is so small as to present an almost absurd contrast to our size. It is properly treated as little more than a nucleus for organization in case of serious war. Yet we are a rich nation and undefended wealth invites aggression. The very liberty of individual speech and action, which we so prize and guard, renders it possible that at times unexpected causes of friction with foreign Powers may suddenly develop.

"At this moment we are negotiating arbitration treaties with all the other great Powers that are willing to enter into them. These arbitration treaties have a special usefulness, because in the event of some sudden disagreement they render it morally incumbent upon both nations to seek first to reach an agreement through arbitration and at least secure a breathing space during which the cool judgment of the two nations involved may get the upper hand over any momentary burst of anger.

"These arbitration treaties are entered into not only with the hope of preventing wrongdoing by others against us, but also as a proof that we have no intention of doing wrong ourselves. Yet it is idle to assume, and from the standpoint of national interest and honor it is mischievous folly for any statesman to assume that this world has yet reached the stage or has come within measurable distance of the stage when a proud nation, jealous of its honor and conscious of its great mission in the world, can be content to rely for peace upon the forbearance of other powers. It would be equally foolish to rely upon each of them possessing at all times and under all circumstances and provocations an altruistic regard for rights of others. Those who hold this view are blind indeed to all that has gone on before their eyes in the world at large. They are blind as to what has happened in China, in Turkey, in the Spanish possessions, in central and south Africa, during the last dozen years. For centuries China has cultivated every spirit which our own peace-at-any-price men wish this country to adopt; for centuries China has refused to provide military forces and has treated the career of the

soldier as inferior in honor and regard to the career of the merchant or of the man of letters. There has never been so large an empire which for so long a time has so resolutely proceeded on the theory of doing away with what is called 'militarism.'

"Whether the result has been happy in internal affairs I need not discuss; all the advanced reformers and far-sighted patriots in the Chinese Empire at present are seeking (I may add, with our hearty good-will) for a radical and far-reaching reform in internal affairs.

"In external affairs the policy has resulted in various other nations now holding large portions of Chinese territory, while there is a very acute fear in China lest the empire, because of its defenselessness, be exposed to absolute dismemberment, and its well-wishers are able to help it in only a small measure, because no nation can help any other unless that other can help itself.

"The State Department is continually appealed to to interfere on behalf of peoples and nationalities who insist that they are suffering from oppression; now Jews in one country, now Christians in another; now black men said to be oppressed by white men in Africa; Armenians, Corsicans, Finns, Poles, representatives of all appeal at times to this government. All of this oppression is alleged to exist in time of profound peace, and frequently, although by no means always, it is alleged to occur at the hands of people who are not very formidable in a military sense. In some cases the accusations of oppression and wrong-doing are doubtless ill-founded. In others they are well-founded, and in certain cases the most appalling loss of life is shown to have occurred, accompanied with frightful cruelty. It is not our province to decide which side has been right and which has been wrong in all or any of these controversies.

"I am merely referring to the loss of life. It is probably a conservative statement to say that within the last twelve years, at periods of profound peace, and not as the result of war, massacres and butcheries have occurred in which more lives of men, women and children have been lost than in any single great war since the close of the Napoleonic struggles. To any public man who knows of the complaints continually made to the State Department there is an element of grim tragedy in the claim that the time has gone by when weak nations or peoples can be oppressed by those that are stronger without arousing effective protest from other strong interests. Events still fresh in the minds of every thinking man show that neither arbitration nor any other device can as yet be invoked to prevent the

gravest and most terrible wrongdoing to peoples who are either few in numbers or who, if numerous, have lost the first and most important of national virtues—the capacity for self-defense.

"When a nation is so happily situated as is ours—that is, when it has no reason to fear or to be feared by its land neighbors—the fleet is all the more necessary for the preservation of peace. Great Britain has been saved by its fleet from the necessity of facing one of the two alternatives—of submission to conquest by a foreign Power, or of itself becoming a great military Power. The United States can hope for a permanent career of peace on only one condition, and that is, on condition of building and maintaining a first class navy, and the step to be taken toward this end at this time is to provide for the building of four additional battleships. I earnestly wish that the Congress would pass the measures for which I have asked for strengthening and rendering more efficient the Army as well as the Navy; all of these measures as affecting every branch and detail of both services are sorely needed, and it would be the part of far-sighted wisdom to enact them all into laws, but the most vital and immediate need is that of the four battleships. To carry out this policy is but to act in the spirit of George Washington; is but to continue the policies which he outlined when he said: 'Observe good faith and justice toward all nations. Cultivate peace and harmony with all.' Nothing is more essential than that permanent, inveterate antipathies against particular nations and passionate attachments for others should be excluded, and that in place of them just and amicable feelings toward all should be cultivated.

"I cannot recommend to your notice measures for the fulfillment of our duties to the rest of the world without again pressing upon you the necessity of placing ourselves in a condition of complete defense, and of exacting from them the fulfillment of their duties toward us. The United States ought not to indulge a persuasion that, contrary to the order of human events, they will forever keep at a distance those painful appeals to arms which are the history of every other nation. There is a rank due to the United States among nations which will be withheld, if not absolutely lost, by the reputation of weakness.

"If we desire to avoid insult, we must be able to repel it; if we desire to secure peace, one of the most powerful instruments of our rising prosperity, it must be known that we are at all times ready for war.

"THEODORE ROOSEVELT.

"The White House, April 14, 1908."



BOAT RACES IN SAN DIEGO HARBOR, BETWEEN CREWS FROM THE BATTLESHIPS

THE PACIFIC CRUISE

After finishing target practice at Magdalena Bay, the battleship fleet sailed north on April 11, for the visits it has since been making at California coast cities. Admiral Evans, owing to illness, left the fleet at Magdalena Bay, to receive treatment, and in consequence Rear Admiral Thomas became acting commander-in-chief, and transferred his flag to the *Connecticut* on April 4. Unofficial reports of the results of the target practice indicate an advance in the remarkable shooting of the whole navy.

In the regatta of April 10, the following were the results of the various races:

Pulling race, Battenburg Cup, 10 miles: won by the *Louisiana* crew.

Belmont Cup, two miles: won by the *Louisiana* crew.

Jamestown Cup, one mile, for officers: won by the *Georgia*.

Havana Cup, gigs: won by the *Missouri*.

Dnulpap Cup, two miles, for marines: won by the *Alabama*.

Dungey race, for the gunners' gang: won by the *Minnesota*.

Brolch Cup, two miles, for engineers: won by the *Kentucky*.

Sailing race, Colonial Dames Cup, for barges, distance 10 miles: won by the *Connecticut*.

Sailing launches, 10 miles: won by the *Vermont*.

Barry Cup, gigs, sailing three miles: *New Jersey* and *Maine* tied.

Rudderless cutter, sailing five miles: won by the *Minnesota*.

Whale boats, sailing five miles: won by the *Maine*.

The fleet left Magdalena Bay at 4 in the afternoon of April 11, for San Diego, California, for its first stop, where it arrived on April 14. During its stay of four days at San Diego, the fleet was entertained with lavish hospitality. One of the features of the fleet's stay was the great parade April 15, in which five thousand officers and men from the ships took part under command of

Captain Schroeder of the *Virginia*. California was represented in the parade by detachments from the State Guard and Naval Reserve, and many societies took part. The parade moved to City Park, where the city offered its official welcome. Speeches of welcome were made by Governor Gillette, and Mayor Forward of San Diego. Admiral Thomas replied for the fleet, and received two gifts that had been prepared for Admiral Evans, who was absent on account of his illness. These gifts were an elaborate golden key to the city and a valuable sword, with hilt set with red tourmalines and surmounted with a gold design in relief. Admirals Thomas, Sperry, and Emory were decorated with gold medals. A medal was also prepared for Captain Ingersoll, chief of staff.

Balls and banquets for the officers, lavish entertainment for the crews, and much visiting of the ships by the people of San Diego, filled up the other days and nights of the stay in San Diego.

Leaving San Diego at six on the morning of April 18, the fleet arrived at San Pedro, where it was welcomed by many thousands of people from Los Angeles. Mayor Harper of Los Angeles, with Lieutenant General Chaffee and other members of the Los Angeles reception committee, met the fleet several miles down the coast and boarded the *Connecticut*. On April 19, the fleet was split up into four divisions, so that they might be shown to the people of the four ports near Los Angeles.—San Pedro, Redondo, Long Beach, and Santa Monica. The four days' entertainment at Los Angeles was of the most lavish and generous sort.

PERSONNEL AND SHIPS OF THE ATLANTIC FLEET

SECOND SQUADRON—FOURTH DIVISION

REAR ADMIRAL CHARLES S. SPERRY, Commanding.

Ensign Halsey Powell..... Aid on Staff
Battleships *Alabama*, *Illinois*, *Kearsarge*, and *Kentucky*.



BATTLESHIP ALABAMA (Flagship of Fourth Division)

Normal displacement.....	11,552 tons
Full load displacement.....	12,150 tons
Length over all.....	374 feet
Beam.....	74 feet 2½ inches
Mean draught.....	23 feet 6 inches
Bunker capacity.....	1,275 tons
Speed on trial.....	17.01 knots
Battery—Four 13-inch, fourteen 6-inch, and small guns; one 18-inch torpedo tube.	
Armor—Main armor belt: 16½ inches thick. Turrets: extreme thickness, thirteen-inch, 14 inches. Barbettes: thirteen-inch, 15 inches.	

Captain Ten Eyck De W. Veeder.....Commanding Officer
 Lieutenant-Commander Thomas P. Magruder.....Executive Officer
 Lieutenant-Commander Charles B. McVay, Jr.,.....Navigating Officer
 Lieutenant Roland I. Curtin.....Ordnance Officer
 Lieutenant William N. Jeffers.....Senior Engineer Officer
 Lieutenant Daniel W. Wurtzbaugh.....
 Lieutenant Edward Woods.....
 Lieutenant Harold E. Cook.....
 Ensign Herbert H. Michael.....
 Ensign Benjamin K. Johnson.....
 Ensign Lucian Minor.....
 Midshipman Henry M. Jensen.....
 Midshipman Albert S. Rees.....
 Midshipman Claude A. Bonvillian.....
 Midshipman John B. Howles.....
 Midshipman Lemuel M. Stevens.....
 Midshipman John W. Lewis.....

Midshipman Richard T. Keiran.....
 Midshipman Allan S. Farguhar.....
 Midshipman Forney M. Knox.....
 Midshipman Ernest G. Kittel.....
 Surgeon Luther L. Von Wedekind.....Medical Officer
 Passed Ass't Surgeon F. W. S. Dean.....Ass't Medical Officer
 Paymaster Frederick B. Colby.....Pay Officer
 Captain of Marines James McE. Huey.....
 Second Lieutenant of Marines Jeter R. Horton.....
 Boatswain John A. Riley.....
 Chief Gunner William G. Smith.....
 Gunner Emil Swanson.....
 Chief Carpenter Charles Thompson.....
 Warrant Machinist Arthur H. Hawley.....
 Warrant Machinist George W. Byrne.....
 Warrant Machinist William P. Davis.....
 Joseph L. Reay.....Paymaster's Clerk



BATTLESHIP ILLINOIS

Normal displacement	11,552 tons
Full load displacement	12,150 tons
Length over all	375 feet 4 inches
Beam	72 feet 2½ inches
Mean draught	23 feet 6 inches
Bunker capacity	1,275 tons
Speed on trial	17.45 knots
Battery—Four 13-inch, fourteen 6-inch, and small guns; one 18-inch torpedo tube.	
Armor—Main armor belt: 16½ inches thick. Turrets: extreme thickness, thirteen-inch, 14 inches. Barbettes: thirteen-inch, 15 inches.	

Captain John M. Bowyer Commanding Officer
 Lieutenant Commander Andrew T. Long Executive Officer
 Lieutenant Commander Henry A. Pearson Navigating Officer
 Lieutenant Commander Louis R. de Siegen Ordnance Officer
 Lieutenant Frederick L. Horne, Jr. Senior Engineer Officer
 Lieutenant George W. Steele, Jr.
 Lieutenant Victor S. Houston
 Ensign Charles H. Bullock
 Ensign Carl A. Richter
 Ensign Roscoe C. MacFall
 Ensign Arthur W. Sears
 Midshipman George S. Bryan
 Midshipman Arthur L. Bristol, Jr.
 Midshipman George A. Alexander
 Midshipman George E. Lake
 Midshipman Chester H. J. Keppeler
 Midshipman Randall Jacobs

Midshipman Louis H. Maxfield
 Midshipman Bert B. Taylor
 Midshipman Herbert L. Spencer
 Midshipman Louis J. Gulliver
 Surgeon Edward M. Shipp Medical Officer
 Passed Asst Surgeon Charles M. Oman Asst Medical Officer
 Paymaster George W. Reeves, Jr. Pay Officer
 Captain of Marines Alexander S. Williams
 First Lieutenant of Marines Franklin S. Wiltse
 Boatswain John P. Judge
 Chief Gunner Herbert Campbell
 Gunner Harry Adams
 Carpenter Samuel C. Burgess
 Warrant Machinist Adam Gibson
 Warrant Machinist Henry I. Edwards
 Warrant Machinist Adolph Peterson
 George W. Masterson Paymaster's Clerk



BATTLESHIP KEARSARGE

Normal displacement.....	11,520 tons
Full load displacement.....	12,320 tons
Length over all.....	375 feet 4 inches
Beam.....	72 feet 2½ inches
Mean draught.....	23 feet 6 inches
Bunker capacity.....	1,500 tons
Speed on trial.....	16½ knots
Battery—Four 13-inch, four 8-inch, fourteen 5-inch, and small guns; one 18-inch torpedo tube.	
Armor—Main armor belt: 16½ inches thick. Turrets: extreme thickness, thirteen-inch, 17 inches; eight-inch, 11 inches. Barbettes: thirteen-inch, 15 inches.	

Captain Hamilton Hutchins.....Commanding Officer
 Lieutenant-Commander Nathan C. Twining.....Executive Officer
 Lieutenant-Commander John V. Chase.....Navigating Officer
 Lieutenant Samuel B. Thomas.....Ordnance Officer
 Lieutenant Bayard T. Bulmer.....Senior Engineer Officer
 Ensign Logan Cresap.....
 Ensign Roy C. Smith.....
 Ensign Arthur C. Scott, Jr.....
 Ensign Louis P. Davis.....
 Ensign Gordon M. Haimes.....
 Midshipman William A. Hall.....
 Midshipman Matthias E. Manly.....
 Midshipman Arthur A. Gercelet, Jr.....
 Midshipman Arthur W. Frank.....
 Midshipman Felix X. Gygax.....
 Midshipman Roy L. C. Stover.....

Midshipman Clyde R. Robinson.....
 Midshipman Raymond F. Frelsen.....
 Midshipman Harold H. Johnstone.....
 Midshipman Burton A. Strait.....
 Surgeon Henry D. Wilson.....Medical Officer
 Assistant Surgeon Edgar L. Woods.....Assistant Medical Officer
 Paymaster Henry DeF. Mel.....Pay Officer
 Captain of Marines Robert H. Dunlap.....
 First Lieutenant of Marines Robert B. Farquharson.....
 Boatswain Harry Williams.....
 Gunner William H. Walker.....
 Carpenter James L. Jones.....
 Warrant Machinist James A. Hickey.....
 Warrant Machinist Byron C. Howard.....
 Warrant Machinist William S. White.....
 Alpheus M. Jones.....Paymaster's Clerk



BATTLESHIP KENTUCKY

Normal displacement.....	11,520 tons
Full load displacement.....	12,320 tons
Length over all.....	375 feet 4 inches
Beam.....	72 feet 2½ inches
Mean draught.....	23 feet 6 inches
Bunker capacity.....	1,500 tons
Speed on trial.....	16.90 knots
Battery—Four 13-inch, four 8-inch, fourteen 5-inch, and small guns; one 18-inch torpedo tube.	
Armor—Main armor belt: 16½ inches thick. Turrets: extreme thickness, thirteen-inch, 17 inches; eight-inch, 11 inches. Barbettes: thirteen-inch, 15 inches.	

Captain Walter C. Cowles.....Commanding Officer
 Lieutenant-Commander Henry A. Wiley.....Executive Officer
 Lieutenant-Commander John K. Robison.....Navigating Officer
 Lieutenant Thomas T. Craven.....Ordnance Officer
 Lieutenant William Norris.....Senior Engineer Officer
 Lieutenant Francis Martin.
 Lieutenant Harry A. Baldrige.
 Ensign John Grady.
 Ensign Abram Claude.
 Ensign Edward S. Robinson.
 Ensign Wilhelm I. Friedell.
 Ensign Benjamin Dutton, Jr.
 Midshipman John H. Towers.
 Midshipman Stephen Doherty.
 Midshipman John F. Connor.
 Midshipman George H. Bowdye.
 Midshipman Earle F. Johnson.

Midshipman Vaughn V. Woodward.
 Midshipman Alfred W. Atkins.
 Midshipman Ralph R. Stewart.
 Midshipman Alfred H. Miles.
 Midshipman Clarence N. Hinkamp.
 Surgeon Alfred G. Grunwell.....Medical Officer
 Passed Ass't Surgeon Wesley H. Rennie....Ass't Medical Officer
 Paymaster George G. Schels.....Pay Officer
 Captain of Marines Randolph C. Berkeley.
 Second Lieutenant of Marines Tom D. Barber.
 Chief Boatswain Allen Whipkey.
 Chief Gunner George Charrette.
 Carpenter Caleb Whitford.
 Warrant Machinist August Anschultz.
 Warrant Machinist Franz J. M. Parduhn.
 Frederick W. Jepson.....Paymaster's Clerk
 Warrant Machinist Charles Franz.



THE VILLAGE OF MAGDALENA
Looking south. Taken at a distance of three miles

MAGDALENA BAY, MEXICO

Magdalena Bay and its surrounding shores—in fact, nearly the whole of Lower California—were surveyed by Admiral Dewey and the officers of the U. S. S. *Ranger* away back in the '70's. This survey was continued, by various officers of the *Ranger*, until 1902. The charts of Lower California are now complete, including the Gulf and the coast on the west side as far north as San Diego.

Magdalena Bay is seventeen miles long northwest and southeast, and twelve miles wide, with an area of one hundred square miles outside the five-fathom line. A series of lagoons, opening from the northwestern end, extend to the northward more than sixty miles, and whaling vessels have been known to ascend forty miles from the bay. The land bordering on the north and east sides of the bay is flat, and is covered with low bushes and cactus; high hills rise toward the interior. The south side of the bay is lined with foothills, which rise to the height of mountains farther from the shore. Most of these mountain peaks are named after the naval officers who surveyed them, or after their wives or sweethearts, or according to whatever fancy possessed the particular individual at the time. The country, though almost barren, is a hunter's paradise; and the waters abound with every species of fish.

Magdalena has been used as a drill-ground and great gun range since 1900, and is ideal in every way. The bay is rarely too rough for small boats, and the climate is such that officers and men wear white nearly the entire year. The ships of the navy usually spend from six weeks to two months in Magdalena Bay, and during that time wonderful results are accomplished. There is a steady grind six days of each week; and if a vessel is on the great gun range, the grind extends over Sunday. Nothing is talked of but target-practice, and the one aim in life is to punch holes through the target. The results of the practices held there show how well the gun crews succeed. In 1907 every trophy, except the battleship trophy, (there was no battleship in the squadron), was carried off by the Second Pacific Squadron.

While the ships are in the bay, baseball and football games take place ashore Saturday and Sunday afternoons, between the crews of the different ships. All the mascots, including goats, deer, dogs, cats, monkeys, parrots, and ant-eaters, turn out, together with the bands. The crews are equipped with megaphones or any device that will make a noise, and the din of the fray can be heard for miles off-shore.

The nearest coaling station to Magdalena is Pinchil-



THE BOAT LANDING AT MAGDALENA

The torpedo boat *Preble* and the *Charleston* steaming down the range

inque Bay, near La Paz, some one hundred and forty miles north of Cape San Lucas and on the east side of Lower California. This is an ideal place for a coaling

station, as the enemy would never find it; and if they should, they would burn up more coal reaching it than they would be able to take away. Back of the coaling



A LIBERTY PARTY ON SHORE IN MAGDALENA

station are the most wonderful salt beds in the world. The sea water is admitted through sluices and rapidly evaporates, leaving the pure salt, which is used on the cattle ranches. Forty miles south of Pinchilique is a wonderful valley, drained by numerous small streams from the mountains. The valleys here are fertile and of vast wealth; if a railroad ever reaches them from the States, here will be the garden spot and sanatorium of the world. The San Jose Valley, forty miles north of San Lucas, on the east side of Lower California, is by far the

richest valley, and its climate and scenery baffles description.

Lower California is seven hundred and twenty miles long by seventy-five to ninety miles wide, and, notwithstanding the fact that it is considered a barren wilderness, it contains vast wealth. It is alive with game, and all its bays abound with fish, which never seem to decrease. In short, it is too bad that Secretary Root was unable to obtain Lower California, for we certainly need it.

THE HAGUE TREATIES

NEUTRAL POWERS IN NAVAL WAR

Since the last issue of *THE NAVY* went to press, the United States Senate has ratified several other Hague treaties. These include the Convention for the Pacific Settlement of International Disputes, which was ratified by the Senate on April 2, and the Convention Concerning the Rights and Duties of Neutral Powers in Naval War, which was ratified and made public on April 17. In ratifying the Convention for the peaceful adjustment of international differences, the Senate, following the recommendation of Secretary of State Root, passed a resolution rendering its action subject to the declaration that, in approving the convention, the United States Government exercises the option contained in article 53, to exclude the formulation of the *compromis* by the Permanent Court. The Senate also declared it the position of this Government to exclude from the competence of the Permanent Court the power to frame the *compromis* required by general or special treaties of arbitration concluded by the United States, and, further, that the *compromis* required by any treaty of arbitration to which the United States may be a party shall be settled only by agreement between the contracting parties, unless the treaty expressly provides otherwise.

With the ratification of these additional Hague conventions, the Senate has now approved ten of the twelve documents laid before that body on February 27 as a result of the deliberations of last summer in the Netherlands. Two of the Conventions ratified relate to laws and customs of land warfare, one to international arbitration, and the other seven principally to naval warfare. This leaves only two of the entire series still before the Senate for ratification,—one dealing with the limitation of the employment of force in the recovery of contractual debts; the other with the creation of the proposed international prize court,

The text of the Convention relating to Neutral Powers in Naval War, just ratified, shows that it was not signed by the delegates of the United States to The Hague. It was voted for by a majority of the delegates, but our representatives refrained from attaching their names and reserved the convention for further consideration. After considering the text of the document, Secretary Root recommended that the United States become a party to it by "formal adherence," reserving and excluding from its assent the second paragraph of Article III, which declares that if the prize is not in the jurisdiction of the neutral power, the captor government, on the demand of that power, must liberate the prize with its officers and crew; and also reserving and excluding from its assent all of Article XXIII, relative to the entry of prizes into the ports of neutral powers and the use of convoys.

LENGTH OF STAY IN NEUTRAL PORTS

In some respects this is one of the most important acts of the Second Hague Conference, since it governs the length of stay of belligerent ships in neutral ports. During the war between Russia and Japan very liberal treatment was accorded by France to ships of Admiral Rojestvensky at Madagascar and Saigon. This subject was introduced at the Conference last summer by the German and Japanese delegates. The latter proposed to prohibit absolutely the coaling and victualling in neutral ports of vessels bound for the theatre of war. Russia opposed the idea of limiting the stay of belligerent warships in such ports, and when the Convention was finally submitted, her delegates entirely repudiated the doctrine, in Article XII, that in the absence of special provisions to the contrary in the legislation of a neutral power, belligerent warships shall not remain in the ports, roadsteads, or territorial waters of such a power for longer than twenty-four hours, except

in cases specifically covered by the Convention. The action of Russia led to the belief that she was leaving herself free to grant the use of her Siberian ports to American naval vessels in an outbreak of war between the United States and Japan. Whatever the motive of the Russian delegates, the United States Senate has now estopped our government from taking advantage of any such intentions on the part of Russia, since the Convention has been ratified without reservation as to Article XII.

The Convention as made public April 17 contains a preamble and thirty-three separate articles. The last five articles are purely formal. The preamble says that the signatory nations are desirous of "harmonizing the divergent views which, in the event of naval war, are still held on the relations between neutral powers and belligerent powers," with the view of "anticipating the difficulties to which such divergence of views might give rise;" and also that "even if it is not possible at present to concert measures applicable to all circumstances which may in practice occur, it is nevertheless undeniably advantageous to frame, as far as possible, rules of general application to meet the case where war has unfortunately broken out." The signatory powers also declare in the preamble their belief that in cases not covered by the Convention it is expedient to take into consideration general principles of the law of nations; that it is desirable that the powers should issue detailed enactments to regulate the results of the attitude of neutrality when adopted by them; that it is "an admitted duty" for neutral powers to apply these rules impartially to belligerents; and that "in this category of ideas, these rules should not, in principle, be altered, in the course of the war, by a neutral power except in a case where experience has shown the necessity for such change for the protection of the rights of the power."

TEXT OF THE AGREEMENT

The rules thus agreed upon are set forth in the twenty-eight essential articles of the treaty as follows:—

Article I.—Belligerents are bound to respect the sovereign rights of neutral Powers and to abstain, in neutral territory or neutral waters, from any act which would, if knowingly permitted by any Power, constitute a violation of neutrality.

Article II.—Any act of hostility, including capture and the exercise of the right of search, committed by belligerent war-ships in the territorial waters of a neutral Power, constitutes a violation of neutrality and is strictly forbidden.

Article III.—When a ship has been captured in the territorial waters of a neutral Power, this Power must

employ, if the prize is still within its jurisdiction, the means at its disposal to release the prize with its officers and crew, and to intern the prize crew. If the prize is not in the jurisdiction of the neutral power, the captor government, on the demand of that power, must liberate the prize with its officers and crew.

Article IV.—A Prize Court cannot be set up by a belligerent on neutral territory or on a vessel in neutral waters.

Article V.—Belligerents are forbidden to use neutral ports and waters as a base of naval operations against their adversaries, and in particular to erect wireless telegraphy stations or any apparatus for the purpose of communicating with the belligerent forces on land or sea.

Article VI.—The supply, in any manner, directly or indirectly, by a neutral Power to a belligerent Power, of war-ships, ammunition, or war material of any kind whatever, is forbidden.

Article VII.—A neutral Power is not bound to prevent the export or transit, for the use of either belligerent, of arms, ammunition, or, in general, of anything which could be of use to an army or fleet.

Article VIII.—A neutral Government is bound to employ the means at its disposal to prevent the fitting out or arming of any vessel within its jurisdiction which it has reason to believe is intended to cruise, or engage in hostile operations, against a Power with which that Government is at peace. It is also bound to display the same vigilance to prevent the departure from its jurisdiction of any vessel intended to cruise, or engage in hostile operations, which had been adapted entirely or partly within the said jurisdiction for use in war.

Article IX.—A neutral Power must apply impartially to the two belligerents the conditions, restrictions, or prohibitions made by it in regard to the admission into its ports, roadsteads, or territorial waters, of belligerent war-ships or of their prizes.

Nevertheless, a neutral Power may forbid a belligerent vessel which has failed to conform to the orders and regulations made by it, or which has violated neutrality, to enter its ports or roadsteads.

Article X.—The neutrality of a Power is not affected by the mere passage through its territorial waters of war-ships or prizes belonging to belligerents.

Article XI.—A neutral Power may allow belligerent war-ships to employ its licensed pilots.

Article XII.—In the absence of special provisions to the contrary in the legislation of a neutral Power, belligerent war-ships are not permitted to remain in the ports, roadsteads, or territorial waters of the said Power for more than twenty-four hours, except in the cases covered by the present Convention.

Article XIII.—If a Power which has been informed of the outbreak of hostilities learns that a belligerent war-ship is in one of its ports or roadsteads, or in its territorial

waters, it must notify the said ship to depart within twenty-four hours or within the time prescribed by local regulations.

Article XIV. — A belligerent war-ship may not prolong its stay in a neutral port beyond the permissible time except on account of damage or stress of weather. It must depart as soon as the cause of the delay is at an end.

The regulations as to the question of the length of time which these vessels may remain in neutral ports, roadsteads, or waters, do not apply to war-ships devoted exclusively to religious, scientific, or philanthropic purposes.

Article XV. — In the absence of special provisions to the contrary in the legislation of a neutral Power, the maximum number of war-ships belonging to a belligerent which may be in one of the ports or roadsteads of that Power simultaneously shall be three.

Article XVI. — When war ships belonging to both belligerents are present simultaneously in a neutral port or roadstead, a period of not less than twenty-four hours must elapse between the departure of the ship belonging to one belligerent and the departure of the ship belonging to the other.

The order of departure is determined by the order of arrival, unless the ship which arrived first is so circumstanced that an extension of its stay is permissible.

A belligerent war-ship may not leave a neutral port or roadstead until twenty-four hours after the departure of a merchant-ship flying the flag of its adversary.

Article XVII. — In neutral ports and roadsteads belligerent war-ships may only carry out such repairs as are absolutely necessary to render them seaworthy, and may not add in any manner whatsoever to their fighting force. The local authorities of the neutral Power shall decide what repairs are necessary, and these must be carried out with the least possible delay.

Article XVIII. — Belligerent war-ships may not make use of neutral ports, roadsteads, or territorial waters for replenishing or increasing their supplies of war material or their armament, or for completing their crews.

Article XIX. — Belligerent war-ships may only revictual in neutral ports or roadsteads to bring up their supplies to the peace standard.

Similarly these vessels may only ship sufficient fuel to enable them to reach the nearest port in their own country. They may, on the other hand, fill up their bunkers built to carry fuel, when in neutral countries which have adopted this method of determining the amount of fuel to be supplied.

If, in accordance with the law of the neutral Power, the ships are not supplied with coal within twenty-four hours of their arrival, the permissible duration of their stay is extended by twenty-four hours.

Article XX. — Belligerent war-ships which have shipped fuel in a port belonging to a neutral Power may not within the succeeding three months replenish their supply in a port of the same Power.

Article XXI. — A prize may only be brought into a

neutral port on account of unseaworthiness, stress of weather, or want of fuel or provisions.

It must leave as soon as the circumstances which justified its entry are at an end. If it does not, the neutral Power must order it to leave at once; should it fail to obey, the neutral Power must employ the means at its disposal to release it with its officers and crew and to intern the prize crew.

Article XXII. — A neutral Power must, similarly, release a prize brought into one of its ports under circumstances other than those referred to in Article XXI.

Article XXIII. — A neutral Power may allow prizes to enter its ports and roadsteads, whether under convoy or not, when they are brought there to be sequestered pending the decision of a Prize Court. It may have the prize taken to another of its ports.

If the prize is conveyed by a war-ship, the prize crew may go on board the conveying ship.

If the prize is not under convoy, the prize crew are left at liberty.

Article XXIV. — If, notwithstanding the notification of the neutral Power, a belligerent ship of war does not leave a port where it is not entitled to remain, the neutral Power is entitled to take such measures as it considers necessary to render the ship incapable of taking the sea during the war, and the commanding officer of the ship must facilitate the execution of such measures.

When a belligerent ship is detained by a neutral Power, the officers and crew are likewise detained.

The officers and crew thus detained may be left in the ship or kept either on another vessel or on land, and may be subjected to the measures of restriction which it may appear necessary to impose upon them. A sufficient number of men for looking after the vessel must, however, be always left on board.

The officers may be left at liberty on giving their word not to quit the neutral territory without permission.

Article XXV. — A neutral Power is bound to exercise such surveillance as the means at its disposal allow to prevent any violation of the provisions of the above Articles occurring in its ports or roadsteads or in its waters.

Article XXVI. — The exercise by a neutral Power of the rights laid down in the present Convention can under no circumstances be considered as an unfriendly act by one or other belligerents who has accepted the Article relating thereto.

Article XXVII. — The Contracting Powers shall communicate to each other in due course all Laws, Proclamations, and other enactments regulating in their respective countries the status of belligerent war-ships in their ports and waters, by means of a communication addressed to the Government of the Netherlands, and forwarded immediately by that Government to the other Contracting Powers.

Article XXVIII. — The provisions of the present Convention do not apply except to the Contracting Powers, and then only if all the belligerents are parties to the Convention.

FOREIGN NAVIES

GREAT BRITAIN

KEEL OF THE *VANGUARD* LAID

The third of the *St. Vincent* class of battleships will be known as the *Vanguard*, and not as the *Rodney*, as originally intended. Her keel was laid on Thursday, April 2, at the yards of Messrs. Vickers, Sons and Maxim, at Barrow-in-Furness, where her turbines are also being made. Owing to structural changes now determined upon, the displacement of the *Vanguard* has been increased from 19,250 tons to approximately 20,000 tons. The cost of the hull and machinery of the vessel is \$3,056,162. It is anticipated that the completed ship will be turned out at a cost far below that of any similar vessel.

ST. VINCENT CLASS

Work is progressing rapidly upon the *St. Vincent*, at Portsmouth dockyard, and the *Collingwood*, at Devonport dockyard, sister ships, which were laid down, respectively, about the same time that the American battleships *North Dakota* and *Delaware* were started.

Within the first month after the laying of her keel, the *Collingwood* had considerably over one thousand tons of material worked into her hull, with the bulkheads of the machinery and magazine spaces in position. The *Collingwood* was officially commenced at Devonport on February 3, — a month later than the *St. Vincent*. The object of laying them down in this manner was to ensure a regular supply of material for the two ships from the manufacturers. Orders received at the dockyard on Wednesday, March 24, from the British Admiralty, directing that the *Collingwood* should be ready for her machinery trials in September, 1909, and finally completed for commissioning by February 1, 1910. She is of 19,250 tons, and her launch is timed for the end of next August. The Admiralty wants her ready for her gunnery trials in December, 1909.

The *St. Vincent*, the keel of which was laid on December 30, 1907, has already been built up to her armored deck. The deck is now being laid down, the stem piece is in position, and nearly three thousand tons of material have been worked into the hull.

Early in February an order was placed with the steel works of Beardmore & Co., at Barkhead, England, for a part of the armor plating for the three *St. Vincents*. This consisted of twenty-five hundred tons of armor at a price of about £1,250,000. Important naval work in the way

of machinery now under way in engineering shops along the Clyde are the turbine engines for the *St. Vincent*. They were well in hand in March, although ordered only in December from Scott's Shipbuilding & Engineering Co. at Greenock. This is the firm that built the machinery for the new armored cruiser *Defence* and the engines and hull of the armored cruiser *Argyll*. The turbine engines for the *St. Vincent* are contracted to furnish 24,500 horsepower and are estimated to give the vessel twenty-one knots speed. The same company has been given the contract for eighteen Babcock and Wilcox water-tube boilers of most recent type for the *St. Vincent*, and are to furnish for the same ship about fifty sets of auxiliary engines for various purposes.

THE *BELLEROPHON* AND *TEMERAIRE*

Favorable reports are received respecting the building of the three improved *Dreadnoughts* of the *Temeraire* class, — namely, the *Temeraire*, which is under way at Devonport Dockyard, the *Bellerophon*, which is being constructed at Portsmouth dockyard, and the *Superb*, which is building at the Elswick yards of the Armstrongs. A second pair of the ten 12-inch guns has been received at Devonport for the *Temeraire*. They are of the Mark X, wire-bound type, of 45 calibers in length, with a weight of fifty-six and a half tons and an initial muzzle velocity of 2,900 feet per second, giving an effective range of fourteen thousand yards. These new weapons are twelve feet longer than the old 13.5-inch breech-loaders and five feet longer than Marks VIII and IX of the 12-inch type. The *Bellerophon* has now reached the stage where she has been placed in No. 15 Dock at Portsmouth, for the shipping of her rudders. The greater part of her machinery has been received from the contractors and all the turbines are in position.

CHANGES IN THE CHARACTER OF MASTS

Considerable attention, in recent months, has been devoted by British naval authorities to the character, number, and location of masts upon the new *Dreadnoughts*. This problem has also been forced to the front by the lessons learned from the experiments recently had on the Kentish Coast in the bombardment of the old battleship *Hero*, which had her mast badly battered and its enclosed fire-control connections completely severed by fragments from a bursting shell. Shortly after the bombardment took place, the mast of the *Hero*, which sank while serving as a target for vessels of the Channel Fleet, was de-

stroyed by explosives, to prevent the public ascertaining the character of the damages sustained.

The battleship *Hibernia*, which participated in the bombardment of the *Hero*, is to be thoroughly overhauled at Devonport. Among other things, she will have fitted a new insulated rigging and top-gallant masts for the high-power wireless installation and certain fire-control changes.

The rig of the *Bellerophon* class has for some time excited curiosity. Originally intended to have only a single mast placed abaft the forward funnel, it now appears that all of the ships of this class will be fitted with two tripod masts of similar size. Work on the rigging of the *Bellerophon* has advanced far enough to disclose the fact that this vessel will be more heavily masted than the *Dreadnought*, which has one mast forward between the funnels and another, much shorter, mast aft. The main-mast of the *Bellerophon* has now been placed in position and is similar to the foremast. This alteration is the direct result of the gunnery experiments carried out last fall with the *Hero*. These experiments demonstrated the great vulnerability of the fire-control system which is operated from a high platform on the mast, and it has, therefore, been decided that the *Bellerophons* shall have two masts of equal height, so that they may be furnished with two sets of fire-control apparatus. These masts will be of the now familiar tripod pattern and will weigh about thirty tons.

An odd thing in connection with this decision is the statement, now well authenticated, that the *St. Vincents* will have but a small single mast each, and will thus be to all practical purposes mastless ships. This means that the tripod mast which has made its reappearance in the *Dreadnought*, after having been seen many years ago in the old Peruvian battleship *Huascar*, is already doomed. It will not be removed from the vessels which have already been equipped with it, the first four of the *Dreadnought* series (the *Dreadnought*, *Bellerophon*, *Temeraire*, and *Superb*), the two *Lord Nelsons* (the *Lord Nelson* and *Agamemnon*) and probably the first three *Invincibles* (the *Invincible*, *Inflexible*, and *Indomitable*). But there are to be no tripod masts in the *St. Vincents*, which, instead, will have a light mast for signalling work in place of the tripod.

It is not yet understood why the Admiralty drew the line between the *St. Vincents* and the *Bellerophons* in reaching these conclusions, unless it be that the tripods could not well be eliminated from the latter, because they were in too advanced a state when the *Hero* lessons were learned. The heavy military mast has fallen into re-

markable disfavor in recent years. Fifteen years ago, many of the world's battleships were loaded down with all sorts of deck encumbrances and masts, fighting tops and turrets. The British Navy has never gone in for these accretions much, although most of her ships have tops on their masts. During the war in the Far East, Japan is understood to have learned that these tops were both useless and dangerous. This has resulted in the removal of many of them, and Japan's latest ships have no fighting tops.

THE LORD NELSON

The first-class 16,500-ton battleship *Lord Nelson*, the first keel plate of which was laid May 18, 1905, and which was launched September 4, 1907, was delivered to the Admiralty last month from the Palmer works at Jarrow-on-Tyne, and has been ordered to Chatham Dockyard to be commissioned for service as flagship in the Nore Division of the Home Fleet, in place of the first-class battleship *Bulwark*. The *Lord Nelson* is a sister ship of the *Agamemnon*, and was designed by Sir Philip Watts almost immediately after his appointment as Director of Naval Construction to the British Admiralty. Her length is 410 feet; beam, 79 feet 6 inches; and draught 27 feet. She has a very powerful armament, being provided with four 12-inch and ten 9.2-inch guns in her main battery. She also has eighteen 3.5-inch guns, six 3-pounders, six pompons, and two Maxims, besides two submerged torpedo tubes on the broadside and one submerged tube astern, all 18 inches in diameter. She can fire two 12-inch and four 9.2-inch guns, ahead and astern. Her broadside fire is four 12-inch and five 9.2-inch guns. The armor amidships over machinery and vitals is twelve inches, tapering to six inches at the bow and four inches at the stern. The armor above this, extending to the upper deck, is eight inches thick; while there are the usual bulkheads, also eight inches thick, forward and aft. Within them are the barbettes, which are mainly of 12-inch armor, while the mountings of the 9.2-inch guns are protected by armored barbettes with heavy plating hoods. The main armor is made on the Krupp cement system.

STATUS OF THE AGAMEMNON

The 16,500-ton battleship *Agamemnon* could not be made ready and available on March 31, on account of modification in the Admiralty plans for the cooling of her magazine compartments, this being a feature of construction which is being rigidly insisted upon as the result of experiments carried out since the French lost their battleship *Jena* through a magazine explosion. The

Agamemnon is still undergoing the final stages of completion in the tidal basin of the Beardmore Company at Dalninnir. She was recently in dry dock at Govan, receiving a new rudder, but is now again at the yards of her builders. She will shortly be ready.

THE MINOTAUR READY FOR SERVICE

The new 14,600-ton armored cruiser *Minotaur*—sister ship to the *Shannon* and *Defence*—is ready for commissioning, after having carried out her trials satisfactorily and returned to Devonport. The Mark X1 pattern guns with which she is equipped, there being four of these, are regarded as the finest examples of the 9.2-inch armament ever produced. They weigh 29 tons; are 39 feet 6 inches long; have a range of 12,000 yards, and, with a cordite charge of 130 pounds, discharge a projectile weighing 380 pounds with a muzzle velocity of 2,900 foot seconds, for armor penetration of 11½ inches of modern steel plating at 3,000 yards; energy 21,000 foot tons. Their mountings weigh 65 tons and each shield about 78 tons.

THE TRIBAL DESTROYERS

Another ocean-going destroyer of the *Tribal* class, the *Saracen*, was launched at the works of Messrs. J. Samuel White & Co., at East Cowes, on Tuesday, March 31. The *Saracen* makes the sixth of this new type of 33-knot destroyers now afloat in the British Navy. Still another is under way at the White yards. The *Saracen* is expected to attain a higher speed than the *Mohawk*, which made a record of 34.511 knots mean speed during her six best runs on the Maplin Sands course, on November 15 last. It remains to be seen whether the *Saracen* can equal the record of a mean speed of 35.672 knots made by the *Tartar* during her six best runs, on December 16, when she made a world's record of 37.037 knots with the tide as the best speed on one of the runs. Messrs. Thornycroft and Company, of the Woolston works, are entitled to a bonus of £12,000 as a result of this obtaining the "blue ribbon of the sea" for destroyers, and this firm is to build a new vessel of the same type for the Admiralty.

THE LOCH LONG TORPEDO RANGE

The British Admiralty have definitely agreed upon the establishment of a torpedo range seven thousand yards long, on the shores of Loch Long, and of a torpedo factory at Battery Park in the town of Greenock. This location is in line with the policy of regularly requisitioning the banks of the Clyde for naval uses. The area of the land bordering Loch Long, recently taken for the purposes of this range, is 4.17 acres, and it is taken on a feu from

Sir Alan Colquhoun for \$58 an acre annually. For the use of the same range there have been acquired 10 acres of land and 4¾ acres of foreshore near Greenock, from Sir Hugh Shaw-Stewart, at a price of \$132,490, and the Admiralty is also to pay the costs. The torpedo range will not interfere with summer tourist travel nor militate against the scenic attractions of Loch Long. There are approximately seven hundred men employed at Woolwich, directly and indirectly, in the manufacture of torpedoes. In response to a question in Parliament, the Secretary of the Admiralty stated in March that it is the intention, as far as possible, to transfer the present personnel of the Woolwich Torpedo factory to Greenock, and a small departmental committee has been appointed to consider the best method of doing this, with the least inconvenience to those concerned. New torpedo and gun-mounting stores and workshops are being built at Devonport. The building nearest completion is the Whitehead torpedo store, near the north gate of the dockyard, which has been two years under construction. It is two stories high, of brick, stone-faced, and measures 300 by 103 feet. Provision is being made for storing eight hundred torpedoes on the ground floor in racks. This arrangement is expected to save space and allow easy access.

THE NEW WHITEHEAD TORPEDO

Some pertinent questions were asked in the House of Commons, on March 17, by Mr. Bellairs, who wanted to know from the lips of the Admiralty whether they were aware of the activity of foreign navies in ordering the new heater torpedoes invented by the Whitehead firm since the close of the Russo-Japanese war; and also, in view of the reduction of the vote for torpedoes and gun-cotton from \$1,016,501 in 1906-07 to \$1,494,015.50 in 1907-08 and \$1,017,000.50 for the new financial year of 1908-09, whether any of the new torpedoes had been ordered for the British Navy. Mr. E. Robertson, replying on behalf of the Admiralty, answered both questions in the affirmative. Mr. Bellairs also asked the Secretary of the Admiralty whether he was aware that the new heater torpedo gave an increased speed of over 33% for torpedoes fired at a ship 1,500 yards distant, 44% at over 3,000 yards, and 50% at over 4,000 yards, and whether under these circumstances, he would endeavor to cancel all orders for torpedoes of old-fashioned type without heaters. The reply of Mr. Robertson was that the Admiralty was "fully aware" of the increased efficiency of modern Whitehead torpedoes, but it was not in the public interest to detail the steps taken by the department as a result of these improvements.

BRITISH ENGINEER OFFICERS

The Secretary of the Admiralty having been asked in Parliament whether the young officers now being trained afloat would do duty in the engine room and would then have executive rank, responded in the affirmative. When asked whether the engineer commander and the other senior engine-room officers would also have executive power in that event, the Secretary responded that, under existing regulations, the senior officer has, under the captain, all the necessary authority within his own department and is to be obeyed by his subordinates. A third query was for information as to how the admiralty proposed to regulate the relations of senior and junior engineers if the first question were answered negatively. The response from the Secretary to this question was that it would not be necessary to determine the future relations of engineer officers of the old and new style for some time to come. Engineer officers who have finished a professional course at Greenwich do not return to that establishment, but opportunities of attending courses of instruction are given them, so as to have them up-to-date with modern advances in their profession.

ROSYTH—THE NEW NORTH SEA BASE

The plans of the first section of the scheme for the establishment of the new North Sea naval base for the British navy at Rosyth, in the Firth of Forth, Scotland, have been made public by the British Admiralty. A chart illustrative of the portion of the new development to be undertaken at once has been prepared by Colonel Sir E. Raban, K.C.B., R.E., Director of the Works Department of the Admiralty, was given out for publication about the middle of last month. The construction of this portion of the new base is to begin at once, the contract having already been let for the expenditure of large sums. The first installment described in the Admiralty circular will cost \$17,032,750. This section includes a basin capable of accommodating twenty-two battleships and cruisers of the largest class, and a lock 850 feet long by 110 feet wide, capable of accommodating the improved *Dreadnoughts*.

The principal items are described in the official statement of the Admiralty as follows:

"Basin, having an area of 52½ acres, with projecting pier, giving a total wharfage of 7,108 feet. Depth of water is 38 feet 8 inches.

"Entrance lock, available for use as a dock, 850 feet long, 110 feet wide at entrance, and 36 feet deep over sill at low water of spring tides.

"A straight river wharf, 2,733 feet long, with 36 feet depth at high water of neap tides. This wharfage is car-

ried sufficiently deep to enable berths to be ultimately dredged to 36 feet at low water of spring tides.

"Emergency exit, 110 feet wide, from basin, with depth similar to the basin.

"Space for stacking coal is provided on the ground, south of the entrance lock.

"Dry dock, 750 feet long, 100 feet wide at entrance, and 36 feet depth of water over the sill. This can be subdivided for use as two separate dry docks, 450 feet and 280 feet in length, respectively.

"Boat slip, 200 feet by 130 feet wide, one-half of which is covered with light roofing.

"Basin for submarine boats (and temporarily for destroyers) 600 feet wide, by 470 feet, with a depth of 15 feet at low water of spring tides. Floating dock, 250 feet long, will be provided, with jetties for twelve submarines and six destroyers.

"An approach channel to the entrance lock will be dredged to a depth of 36 feet at low water of spring tides and a bottom width of 1,050 feet.

"Railways of the ordinary gauge are provided generally and will connect with the North British Railway Company's system. The scheme includes the usual equipment of railways, cranes, etc., and also workshops, storehouses, and residences for officers.

"Electric light and power will be provided for the whole of the establishment.

"Reserve space is also provided for two future docks, parallel with the one which is now to be built."

GERMANY

CHANGES IN SAILORS' UNIFORM

Announcement comes from Europe that Emperor William has issued an order directing that the trousers of seamen in the German navy are hereafter to be made two centimeters—about three-quarters of an inch—wider. The Kaiser keeps a watchful eye on every inch of his navy and does not confine his attention to the building of battleships in competition with Great Britain.

THE GERMAN SHIPBUILDING PROGRAM

In connection with the adoption by the Reichstag of the German naval building program for 1908, the Kaiser has telegraphed from Otranto to Admiral von Tirpitz, Imperial Secretary of the Navy, congratulating him upon the successful way in which the program was managed and making it the grounds for a substantial promotion for that distinguished German naval officer. The Kaiser's telegram read as follows:

"Your report of the adoption of the Navy Estimates has pleased me greatly. The knowledge of the success won in the service of the Fatherland will be the best reward for all the trouble and care taken by you and your

assistants, but I feel personally impelled to give a visible expression of my grateful recognition of your services. I have therefore resolved to summon you to the Upper House of the Prussian Diet as a mark of special confidence."

According to this 1908 shipbuilding program, the adoption and publication of which has led to the promotion of Admiral von Tirpitz, three battleships of the improved *Nassau* type are to be laid down in Germany this year for the Imperial navy, in addition to one large armored cruiser, four smaller cruisers, and one gunboat. By the credits voted for 1906 and 1907, Germany has four battleships, two armored cruisers, four smaller cruisers, and two special service vessels now under construction. This makes a total of nineteen men-of-war now under construction or about to be laid down in Germany, seven of which are battleships of the improved *Dreadnought* type. The German fleet will be still further enlarged and strengthened by the addition of twenty-four new torpedo boats under the 1907 and 1908 programs and several submarines. The total work for the year outside of the mosquito craft will be the seven huge battleships, three powerful armored cruisers, now temporarily designated as *E*, *F*, and *G*, six protected cruisers, and three smaller craft.

GERMANY'S GREAT NEW CRUISER

The first of the large new armored cruisers for the German Navy—the *Blücher*—was launched successfully at the Imperial dockyard at Kiel on Saturday, April 11, in the presence of Prince Henry of Prussia and many high Admiralty officials. She has up to this time been carried in the Germany Navy lists as cruiser *E*. Countess *Blücher* christened the ironclad, which displaces 15,000 tons—the first of the new German series of that size. General Baron von der Goltz, commander of the German army corps at Koenigsberg, delivered an address.

The *Blücher* is the first Continental reply to the three British *Invincibles*, of 17,250 tons each, which are now nearing completion. The German vessel is virtually a cruiser-battleship in all except name. The ship is being built entirely of high tensile steel, at an estimated cost of \$6,915,000, of which \$4,625,000 will be spent on the hull and machinery, while her armament will cost \$2,125,000 and her torpedo armament \$165,000. She has triple reciprocating machinery, and her contract speed is 25 knots an hour. The vessel was begun in the fall of 1906, and is an improvement over the new *Scharnhorst*, which displaces 11,600 tons. Her building has been quicker than that of the British *Invincible*, which took two full years; but the fact must be taken into account that the British

type is 2,250 tons heavier. Nevertheless, Germany is doing some remarkably fast building nowadays.

The *Blücher* will be very powerfully armed. She is to carry ten 11-inch guns on a 15,000-ton displacement, against the eight 12-inch guns which the British *Invincibles* carry on a displacement of 17,250 tons; while our *Michigan* class of battleships are to carry eight 12-inch guns on a displacement of 16,000 tons. The fact that the *Blücher* is to carry ten 11-inch guns on her displacement seems to add more weight to our reports from Berlin last month that the *Nassaus*, which are 17,710-ton ships, or probably 18,000-ton vessels when all is told, are likely to carry sixteen 11-inch guns. The *Blücher's* 11-inch guns will be 46 feet in length and will throw a 750-pound missile. She is to mount also a large number of transformed 3.5-inch quick-firers. These smaller weapons will, it is understood, be fitted with a new automatic loading and ejecting attachment, by means of which the rate of fire, hitherto ten shots per minute, may be increased to nearly forty. The new vessel was planned largely as an experimental ship and is to be alone in her class, as during her construction it was decided that the later cruisers, *F* of the 1907 program and *G* of the 1908 program, are to displace 19,200 or practically 20,000 tons, and to cost between nine million and ten million dollars.

What was originally the sister ship of the *Blücher*, the cruiser *F*, is making progress at the yards of Blohm and Voss of Hamburg. She was laid down last September and will be fitted with Parsons turbines. *F* cruiser is now designed for a speed of 24½ knots and 44,000 horsepower. The main dimensions appear to be 560 feet on the water line, 85 feet beam, and 27 feet draught.

FRANCE

THE WALDECK-ROUSSEAU LAUNCHED

The last of the four large armored cruisers of the 1900 shipbuilding program was launched at the French government dockyard at Lorient, on Wednesday, March 4, under the name of the *Waldeck-Rousseau*. She is the largest cruiser of the French fleet, displacing 13,780 tons, and has a designed speed of 23 knots. The boilers are to develop 36,000 horse-power and were furnished by Messrs. Niclausse of Paris, who also supplied the boilers fitted in a sister ship, the *Ernest Renan*, which was launched at St. Nazaire on April 9, 1906, and is now about to undergo her trials. The *Waldeck-Rousseau* carries fourteen 7.6-inch guns, sixteen 2.4-inch guns, eight 3-pounders and two 1-pounders, besides two submerged torpedo tubes. The crew will number 708 men, with 31 officers.

A PROVING GROUND PLANNED

Decision has been reached to establish a proving ground at Quiberon for the testing of big guns. The main object of certain experiments which are to be conducted there is to study the characteristics and qualities of single-calibre guns on board ships, in connection with the plans for the proposed all-big-gun ships for the French Navy. Quiberon is a small peninsula between Lorient and St. Nazaire, and projects southerly from the province of Morbihan, in the direction of Belle Isle, which stands off the Western coast of France near the mouth of the River Loire. Arrangements for the experiments are now under way, with the cooperation of Brest and Lorient government dockyards, which are exceedingly accessible. Three of the new battleships of the *Danton* type are being built in the immediate neighborhood of the new proving ground—the *Mirabeau* at Lorient, and the *Diderot* and *Condorcet* at St. Nazaire. The battleship *Liberte* of the 1900 program is completing at the latter place, and the *Waldeck-Rousseau* has just been launched at the former. The *Danton* is building and the *Democratie* is completing at Brest. It will be seen at glance that the new proving ground is within easy reach of practically all of the heavier ironclads now building for France.

NEW MOSQUITO CRAFT

The French torpedo boat destroyer *Sabretache* has just been launched at Nantes, and the *Hache* at Toulon. The French submersible *Q-04*, of the Laubeuf design, displacing 398 tons, has been launched at Rochefort. The contract for this boat calls for a surface speed of twelve knots and a submerged speed of eight. She will carry seven torpedo tubes and a crew of twenty-four officers and men. The French Minister of Marine has decided that the six new submersibles, *Q-04* to *Q-09*, inclusive, all of which are now under construction, are to be officially listed in the service as follows: *Q-04*, to be named the *Papin*; *Q-05*, the *Fresnel*; *Q-06*, the *Berthelot*; *Q-07*, the *Monge*; *Q-08*, the *Ampere*; *Q-09*, the *Guy-Lussac*.

All six of these were laid down in August, 1905, and each displaces 398 tons.

A report from Toulon states that a private shipyard has just finished the construction to special order of a submarine boat for the sponge fishery, to carry a crew of six men and to descend to a depth of 350 feet and work its way over the bed of the ocean, while wrenching sponges off by an ingenious grappling arrangement.

FRENCH TARGET PRACTICE

The results of the target practice of the French fleet during 1907 has been made public in a ministerial report,

which announces that the honors among the various squadrons and divisions have fallen to the new battleship *Republique*, 14,865 tons, in the Mediterranean, and to the small 4750 cruiser *Bruix* in the Far East. The former carries four 12-inch and ten 7.6-inch guns, while the latter is armed with two 7.6-inch and six 6.4-inch guns. The honors among vessels mounting smaller calibre guns have gone to the 7735-ton armored cruiser *Desaix*, in the Mediterranean, which mounts eight 6.4-inch guns. For the light guns, the best vessel was the *Dupetit Thouars*, 9516 tons, of the Northern Squadron; and among the destroyers, the *Belier* and *Arquebuse* of the same squadron. The best all-round practice of the year was that of the second flotilla in the Far East. Many cash prizes have been awarded to the gunners, while one gunnery officer has been recommended for promotion and two others for the Legion of Honor. As a result of the year's work, the challenge cups given by the French Academy of Sports pass from the battleship *Jaureguiberry* and the armored cruiser *Amiral Aube*, which now hold them, to the *Republique* and *Bruix*. The *Desaix* retains the cup which she won in 1906.

STOPPING TESTS BEING TRIED

The new 14,865-ton battleship *Justice* has sailed from Toulon for Ajaccio, to take on more men and to carry out long distance trials. While she is in Corsican waters she will carry out a series of "stopping" tests, for the purpose of ascertaining the quickness with which she may be stopped, if need be, in time of emergency or danger. These tests will be undertaken with engine speeds corresponding to thirteen to sixteen knots an hour. This is a new form of tests that has not yet been tried with the newer French battleships.

FICTITIOUS SEA SERVICE

M. Thomson, the French Minister of Marine, has brought forward a project for the better regulation of the sea service of French engineer and executive officers. The practice seems to have become frequent of giving fictitious sea service to officers, by attaching them to station ships, tugs, or to almost any kind of vessel afloat, in order that their service on shore might, under such circumstances, be counted as service afloat. Minister Thomson proposes to do away with this anomalous condition by the proposed new law, so as to render fictitious sea service unnecessary.

A SCATHING ARRAIGNMENT OF DEFECTS

During trials recently held, the French battleship *Justice*, at a three hours' test, with all boilers working at forced draught, attained a speed of 19.43 knots at 18,848 horse-power, and on her twenty four hours' trial at nat-

ural draught, with all twenty-four boilers working, she made 17.94 knots at 11,630 horse-power. The *Democrat*, a sister battleship, with all twenty-two boilers working, made 19.44 knots speed at 19,190 horse-power, on her three-hour run, and 17.39 knots speed at 11,472 horse-power on her 20-hour trial, with the same number of boilers at natural draught.

Discussing these ships, "*The Engineer*" of London, in its issue of March 20 last, makes the following pointed comment:

"The first thing which strikes one on reaching the bridge of one of these battleships is the absence of encumbrances which it has been customary to find on all the vessels built previously to the 1900 program. The decks fore and aft have been kept wonderfully free, and this permits of an unrestricted use of the 305 mm. guns, as well as those of the 194 mm. bore. It is, however, to be noticed that boat stagings are placed directly above certain turrets, and it is pretty certain that after one or two shots all this ironwork would be wrecked, and by falling down put the guns out of action. On getting below decks it is also striking not to find the hamper which is so commonly met with in French warships. As a matter of fact there are unusual facilities for getting about and for carrying out maneuvers. The transverse armored bulkheads, however, are only provided with two openings, one at each side, and these openings only permit of the passage of one man at a time.

"The conning tower is of large size in the vessels of this type. There is a good view of the horizon, but sufficient precautions do not appear to have been taken to prevent splinters entering the windows. The approach to the tower seems to be better protected than in other types.

"The armored tubes which protect the bases of the turrets of the 194 mm. guns and serve for raising the ammunition from the upper armored deck to the spar deck, do not appear to be sufficiently strong to withstand the attack on an enemy, who could easily hit them, as they are not behind any protective armoring. The funnels, too, have no protection between decks, and if a well-directed shot traversing the spar deck, were to wreck one of the funnels, life would be impossible in a not inconsiderable part of the ship, while, of course, the evaporative power of the boilers would be reduced, and, as a consequence, the speed of the vessel also. It is difficult to understand why such important parts should have been left unprotected in this manner.

"The quarters of the admiral and commandant, which are placed aft, are luxuriously arranged, but are decorated with very inflammable materials. The metal bulkheads are covered with pitch pine two cm. thick, which has not been made non-inflammable and which is covered with enlaided linoleum. This combination would be excellent for feeding a conflagration, and as the quarters are not protected with armor, they could easily be set alight by the enemy's fire. Moreover, in the various apartments there is a much larger quantity of woodwork, fittings, etc.,

than is met with in similar British or German vessels. These quarters are situated just aft of the aft 305 mm. gun turret, and if a fire were to occur in them it would greatly hinder the manipulation of the guns of this turret.

"Coming now to mechanical arrangements, there is apparently much to be desired. First of all there is the rudder, which is only worked electrically. This is provided with a mass of controlling apparatus, registers, etc., which will give an angle to half a degree perhaps and which will work at three speeds; but apparently the least little thing puts all the arrangements out of gear and the system is so thoroughly complicated that it takes a long time to put it shipshape again. Nothing may of course go wrong in times of peace, but serious trouble might arise if anything happened to the rudder-controlling mechanism while the vessel was in action; and this part of the equipment has been severely criticised by some French naval experts. The three main engines are in one compartment, in the center portion of the vessel, and space has had to be so much economized that it is difficult for a man to get round and between them. Consequently, supervision, oiling, upkeep and much more, repairs or the replacing of any part can only be carried out with considerable difficulty. Further than this, in order to take the fullest advantage of the latest developments in machinery, a whole host of controlling and regulating devices, of counters and registering arrangements, has been provided which, though they may permit of easier navigation during maneuvers, and of brilliant evolutions, render the working of the vessel all the more difficult when the vessel is in action, and, it is thought, might consequently cause her to be totally lost. The descent to the engine room is typical. It is by means of a single ladder, which only allows of the passage of one man at a time, and in case of accident, whether during trials or maneuvers, it would be impossible to aid quickly those who might be down below. In spite of these defects, to which we may say our attention has been called by one having a large knowledge of French warships, two out of the four of these vessels—that is, the *Democrat* and the *Justice*, which are the first of the four to undergo their trials—have done some excellent work as regards speed."

ITALY

THE ITALIAN NAVAL ESTIMATES

The Italian naval estimates for 1908-09 aggregate \$29,646,718. This represents an increase of more than \$2,400,000 over the consolidated estimates allowed by the law of 1905. The sum allowed for new construction in 1908 is approximately \$1,946,000, and the balance of the increase for an increase of one thousand in the personnel, though the total increase under this heading will be 2881. The estimates also provide for longer service at sea for the men. For naval construction and maintenance, the estimate is \$12,993,294.31. Two new battleships of the *Dreadnought* type are to be laid down, and something like \$2,433,250 will be spent on them during the year. The

Budget Committee recommends that a third ship be laid down at an early date and that the time of building be hastened. Provision is made in the estimates for the completion of the battleships *Roma* and *Napoli*, each of 12,625 tons displacement, which were laid down in the fall of 1903; the continuance of the construction of the armored cruiser *San Marco*; the beginning of a despatch vessel, and of floating dock for submarines; and the building of a tank ship, two lagoon gunboats, a small cruiser, and several minor craft. The armored cruiser *San Marco*, 9832 tons, and her sister, the *San Giorgio*, will be launched later in the year. At the present time there is a strong tendency in Italy in favor of the building of big battleships.

THE COMING ITALIAN MANEUVERS

According to the "Italia Militaire e Marina," the Italian naval maneuvers of 1911 will be carried on with a first line, comprising four battleships of 19,000 tons, six battleships of 13,000 tons, four armored cruisers of approximately 10,000 tons, and three armored cruisers of the *Garibaldi* type, besides destroyers and torpedo boats. Italy will have to do quicker building in the next three years than she has in the past, in order to bring this number of vessels of the size mentioned into line by that time. This program would involve the completion within three years of all of the battleships and armored cruisers now building for the Italian navy and also those to be laid down this year.

JAPAN

JAPANESE NAVAL ESTIMATES

According to advices received, the ordinary naval expenditures of Japan for the fiscal year 1908-09 have been officially proposed as \$17,882,202.77. The extraordinary naval expenditure is given as \$13,727,550.69, making a total of \$31,609,753.46. This represents a decrease of \$787,062.42 as compared with 1907-08. The expenditure proposed for new construction in 1908-09 is \$16,042,904.36.

AMERICAN TURBINES FOR THE IBUKI

The British steamer *Bisley* arrived at Boston, April 21, from Antwerp, to load two turbines for the Japanese Government. The engines were built by the Fore River Engine Company for the Japanese cruiser *Ibuki*, 14,600 tons, recently launched at the Imperial Japanese dockyard at Kure. Each of these turbines is of 12,000 horsepower, and the cruiser is expected to develop twenty-three knots an hour when the engines are installed. Arrangements for transporting the engines were made by

the Japanese banking firm of Mitsui and Company of New York City. After loading the turbine engines, the *Bisley* visited New York to fill up with flat cars and railway material for Japan. Two similar engines will be ready for shipment from the Fore River works about August for the new Japanese battleship *Aki*, 19,800 tons, launched April 15 last at Kure. Besides the engines of the *Ibuki*, the *Bisley* will take some accessories.

THE COMING JAPANESE MANEUVERS

Plans are being made for extensive Japanese naval maneuvers in October and November. Since the tentative itinerary for the cruise of the American battleship fleet across the Pacific provides that our vessels leave Manila about September 23 for Yokohama and arrive in Japanese waters early in October, Rear Admiral Sperry's ships will reach Japan just before the Japanese naval maneuvers commence. Practically the entire fighting strength of the Japanese fleet will be mustered for these maneuvers. The force assembled will comprise one hundred and sixty-one ships, including ten battleships, twelve armored cruisers, ten cruisers, five ironclad coast defence ships, seven despatch boats, sixty torpedo boats, fifty torpedo boat destroyers, and seven submarines. Some of the vessels captured by Japan from Russia and rebuilt since the recent war will participate.

According to the present plans, the following battleships and cruisers will take part:—

Ship	Displacement	BATTLESHIPS.	
		Speed (knots).	Completed in.
<i>Fuji</i>	12,320	18.5	1897
<i>Shikishima</i>	14,850	18.3	1899
<i>Asahi</i>	15,200	18.0	1900
<i>Shiso</i> (<i>Pobieda</i>)....	12,674	18.0	1901
<i>Sagami</i> (<i>Peresviet</i>)..	12,674	18.0	1901
<i>Hizen</i> (<i>Retvisan</i>)...	12,700	18.0	1902
<i>Iwami</i> (<i>Orel</i>).....	13,516	18.0	1904
<i>Katori</i>	15,950	19.5	1906
<i>Kashima</i>	16,400	19.2	1906
<i>Satsuma</i>	19,200	20.5	1907
ARMORED CRUISERS.			
<i>Tokida</i>	9700	23.0	1899
<i>Asama</i>	9700	22.1	1899
<i>Idzumi</i>	9750	22.0	1901
<i>Iwate</i>	9750	22.0	1901
<i>Yakumo</i>	9850	20.0	1901
<i>Adzuma</i>	9436	20.0	1901
<i>Aso</i>	7726	22.0	1902
<i>Kasuga</i>	7200	22.0	1904
<i>Nisshin</i>	7700	20.0	1904
<i>Tsukuba</i>	13750	21.0	1907
<i>Ikoma</i>	13750	20.43	1907
<i>Kurama</i>	14900	20.0	1908

THE SENATE NAVAL INQUIRY

TESTIMONY—I

THE NAVY presents herewith the first instalment of a condensation of the testimony given before the Senate Committee on Naval Affairs, in the inquiry which that Committee conducted beginning February 25, 1908, and ending March 11. As the testimony runs to over three hundred pages on the printed record, the greater part of it is necessarily left out; but those portions which will be printed will represent accurately the positions of the different witnesses.

At the first meeting of the Committee, on February 25, there were present Senators Hale (chairman), Perkins, Platt, Gallinger, Burrows, and Rick, Republicans; and Senators Tillman, Martin, and McEnery, Democrats. Rear Admiral George A. Converse and Chief Constructor Washington L. Capps were present as the first witnesses. Chief Constructor Capps was present also at all the later hearings, acting as counsel for the Navy Department, and cross-examining many of the witnesses.

The purpose of the inquiry was outlined in the opening statement by the Chairman of the Committee, in part, as follows:—

"The hearing which is upon Senate bill 3335, to increase the efficiency of the personnel of the Navy and Marine Corps of the United States, will now commence.

"Both Rear-Admiral Converse and Rear-Admiral Capps have made an examination into the charges affecting the construction and efficiency of certain battleships which appeared in McClure's Magazine for January, 1908, written by Henry Reuterdaahl. The papers by Admiral Converse and Admiral Capps were introduced by me in the Senate a few days ago, printed in the Record, and made public documents by order of the Senate. They will, when received from the Public Printer, be made a part of the record of this hearing; but in the meantime Senators will find before them copies of the Congressional Record in which the papers appear in full. There are also on the table several copies of the January number of McClure's Magazine, containing the article, which from time to time Senators upon the committee can, if necessary, refer to while the hearings are proceeding."

As the Navy Department, more especially the construction bureaus, were in a sense on trial in this inquiry by the naval committee, a presentation of the general case, as expressed in the testimony of line officers before the committee, is a necessary introduction to this condensed report. For this reason, and because he was the only line officer who presented all the facts of which the Committee was in search, THE NAVY gives first a somewhat con-

densed form of the testimony of Commander Albert L. Key, lately naval aid to the President and now assigned to command of the scout cruiser *Salem*. Commander Key was the last witness before the Senate Committee, appearing on March 10 and March 11. The article by Mr. Reuterdaahl, referred to by Chairman Hale of the Committee, is too familiar to need summarizing.

The examination of Commander Key, which began on March 10, proceeded in part as follows:—

The Chairman—Commander Key, you have been here, and you have seen the limitations under which the committee is conducting this examination. It is getting direct testimony, direct statements; not what others have said or what others' reports have been; not criticisms, but statements. The main things that we have been considering are with reference to the armor belt, the placing of it, the water load line, and the hoists. Now state to us what you wish in regard to your knowledge of the subject, your experience and observation; not what you get from other reports, but your knowledge and observation with reference to the location of the armor belt. We ask that first because we have taken that first.

Commander Key—Before I proceed with my testimony I should like to say, sir, that it is not an agreeable duty to come before this committee and criticise our ships as an officer of the Navy; but I expect to prove to the committee that there are unquestionable defects of design in several of our battle ships now in commission; that these defects have been avoided in British battle ships of corresponding date of design. Now, as I have said, this is not an agreeable duty, but, nevertheless, I think it is a duty; for I believe that if there are defects in the ships it is better for us to point them out now and correct those that are susceptible of correction, and enable you to take steps to prevent their recurrence in the future. And I think the testimony that I will give to you on these points will be generally approved by the officers of the fleet. I do not think my criticisms will be approved by the Navy Department. There is a difference of opinion. I think the officers of the fleet in general will approve the testimony that I shall present to you.

Commander Key—I have written down just what I expect to show in my testimony to-day, sir, and perhaps it will be well if I read it. It is only a few lines. I propose to confine myself, with your permission, to-day to the location and distribution of the water line belt armor, height of freeboard, and the height of the 12 and 13 inch guns of the 37 British battle ships completed between 1805 and 1907 and the 18 American battle ships completed between 1809 and 1907. You see they are corresponding dates. During that interval of time, between 1805 and 1907, the English Admiralty completed 37 battle ships

and during the interval between 1899 and 1907 we completed 18. I have selected this comparison because it includes all the battle ships in the fleet now under Rear-Admiral Evans, and because the chief constructor has stated in his testimony before this committee (pages 5 and 6) that the American and British naval construction are of the same general school of design.

Before completing my testimony I request to be permitted briefly but specifically, to invite the attention of the committee to certain portions of the testimony presented by Rear-Admiral Converse, and the chief constructor relative to the water line belt armor, height of freeboard, and height of the 12-inch and 13-inch guns—the particular portions of this testimony that I believe to be radically in error, or from which wrong inferences would be reached if taken at their face value. I am also prepared to state the reasons for the belief that the open turret ammunition hoist, which can be found in our Navy only (that is, in which the handling room is not separated from the turret) introduces an entirely unnecessary danger, both to the powder magazine and to the men in the handling room, during the rapid firing of the turret guns. Furthermore, when I have completed my testimony as to the defects I should deem it a privilege to specifically state the one reason, in my opinion, for their existence.

The Chairman—You need not spend any time in criticizing what other officers have stated, but you may give what you think should be the location of the water line, and how it should be established, and how it is faulty.

Commander Key—Mr. Chairman, I hope, before I leave, that I may point out what I believe to be errors, which I think I can show you are errors in the evidence before the committee.

The Chairman—The committee will have an executive session and will decide after the general hearing what, in the nature of contradiction and criticism of evidence already given, the committee desires to hear. You need not go into that now until the committee desires it.

Commander Key—The chief constructor and I are old personal friends. You will find in this matter, I have no doubt, that our views are very different, and as I discuss the defects already indicated I am perfectly willing that he should ask me directly any questions he wishes instead of asking them through Senators, and I am ready to answer any questions and to be cross-examined at any time.

The Chairman—Go on and make your statement from your own observation and knowledge, and then as you reach any emergency of that kind the committee will decide.

Commander Key—In connection with the water line belt armor the first thing I wish to present is a very short extract from the report of the Walker board.

The Chairman—You need not read that. That may be put in the record.

Commander Key—I cannot make my statement understood unless I can refer to this. It is a very short statement.

The Chairman—Well, read it.

Commander Key—It was quoted both by the chief constructor and Admiral Converse. At page 4, under the heading "General considerations," article 16, it says:—

"A battle ship's 'normal' draft should be her fighting draft—otherwise the term is inaccurate and misleading—not her maximum draft with all the ammunition, coal, and stores that she can carry, but her draft with a large percentage of these supplies—not less than two-thirds of her full capacity of each—on board. And the position of the belt armor should bear its proper relation to this actual load line, not to a fictitious load line seldom realized under service conditions."

On page 5, it says, under the head of "General considerations," article 23:—

"First. That a battle ship when fully equipped for service and containing not less than two-thirds of her full capacity of ammunition, stores, and coal, should not be deeper than her 'normal' or designed draft, upon which her speed is based."

At page 11, under the heading "Conclusions and recommendations," article 1, it says:—

"That the new battle ships, when fully equipped for service, and containing not less than two-thirds of their full capacity of ammunition, stores, and coal, should not be deeper than their 'normal' or designed draft upon which their speed is based, and that their weights of armor and armament should be restricted accordingly."

The indorsement of the Secretary of the Navy was:—

"After conferring with the Chiefs of the Bureaus of Construction and Repair, Steam Engineering, and Ordnance, I approve the general recommendations of the within report, and it is hereby referred to said bureaus with instructions to proceed at once to prepare plans for battle ships 7, 8, and 9, in accordance therewith."

The Chairman—What is the date of that report?

Commander Key—June 11, 1896.

The Chairman—Eleven years ago.

Commander Key—Yes, sir. Now, that was, as you will see, a very short report, only 11 pages long, and the main thing they dwell on in that report was the importance of arranging it so that in the construction of our ships the water-line armor belt should not be distributed around a fictitious line that was seldom attained in actual service, but that it should be placed around a line which should be near the line of flotation of the ship when equipped with coal and stores, ready for service.

The Chairman—Will you state to the committee how you think that should be established? You need not go into the history of what has taken place since that report, but state to the committee how you think that water line should be established.

Commander Key—I think, sir, that it should be established precisely as this board recommended, and as the Secretary of the Navy directed. So far as I know, that order has never been rescinded.

The Chairman—How is that?

Commander Key—Just as I read it to you there.

The Chairman—Will you state in detail what you think should be done to establish the water line, and to fix the location of the armor? You need not go into the old history that has taken place since that.

Commander Key—No, sir.

The Chairman—If the committee want that in the way of criticism afterwards, and want to recall you, the committee will decide upon that.

Senator Gallinger—Can you conveniently tell who the members of that board were?

Commander Key—Rear-Admiral Walker was the president, and he was considered one of our ablest officers.

Senator Gallinger—That is Admiral John G. Walker?

Commander Key—Yes, sir; a very able officer.

Senator Gallinger—And who were the other members?

Commander Key—Commodore R. L. Phythian, Chief Engineer Edward Farmer, Capt. George C. Reney, Lieut. S. A. Stamton, and Naval Constructor J. J. Woodward. The latter was considered an especially able constructor. They all signed that report. They all thoroughly believed in it. That finding has been quoted both by the Chief Constructor and Admiral Converse, in their reports, and I think, from reading their reports, you would imagine it had been carried out, but it has not been carried out. They do say, incidentally, that they have changed the "normal" load of coal, which they arbitrarily fix at any amount. Now that is directly contrary to the recommendations of the board and the directions of the Secretary of the Navy. The order of the Secretary specifically required not less than two-thirds of coal, stores, and supplies under service conditions. Admiral Converse said in his testimony that he approved of this, but he thought there ought to be a full supply of ammunition, instead of two-thirds of the ammunition.

The Chairman—Now, will you state to the committee (for that is the pertinent point to be considered) how you would establish this line? Will you state to the committee, as Admiral Reney and Admiral Goodrich and Captain Winslow have stated, what you think should be on the ship in establishing this water line, or this load line? That is what we want to know.

Commander Key—I think, sir, that that order of the Secretary of the Navy should have been carried out, just as I have quoted it, that the draft line under service conditions should have been the designed "normal" line. You know the constructor has a speed trial with the contractor. The constructor makes certain estimates about the load displacement, and so on, and fixes the draft of the ship, on which she is to have her trial trip, say 23 feet 6 inches, and that draft is obtained by putting a certain amount of coal and water into the ship. She has no stores or ammunition, but they fix that draft very accurately. For instance, off the coast of Maine they will put in a certain amount of coal, and then let water into her double bottoms until she gets say 2 inches above that draft, and then both the contractor and the constructor, the Government representative, watch this very closely, so that she will be at exactly 23 feet 6 inches. Then the ship runs the trial at that draft. But there is no fixed amount of coal aboard and no ammunition, stores, or supplies on board.

The Chairman—Now, Commander Key, you are dealing with exactly what we want to know. You are dealing with this practical question.

Commander Key—Yes, sir.

The Chairman—And I think the committee would like you to state exactly how you think the loading of the ship, either in supplies or in coal or water, before her trial trip or before establishing her water line, should be done, and how that differs from what is done now? That is first-class testimony; that we want.

Commander Key—I think that trial trip is all right. It does not matter to the contractor what draft he has to run the ship provided it is fixed in the specifications upon which he submits his bid. If he has to make a certain speed, he makes his bid, and in the contract they fix it, we will suppose, at 23 feet 6 inches or 24 feet 6 inches. It makes no difference to him, only if they are going to run her at 24 feet 6 inches draft the constructor must not make the speed quite so great.

Senator Tillman—Right there; why not make it so great? Does not that mean that the vessel is going down to 24 feet 6 inches when she is loaded and equipped for business? And why should we have one trial at an absolutely unsuitable depth when she will have another depth when she is in fighting trim? Why should we not have the vessel loaded and the sea trial made with the draft that she will carry when she is finished and loaded for a cruise?

Commander Key—That could be done, but I think it would be difficult to do. It would cause some trouble. They have two trials, Mr. Senator. They have this contractor's trial, and then afterwards they have what they call a final acceptance trial, after the ship is in commission. In my opinion, at this final acceptance trial the work of the constructor ought to be overhauled and that at this trial they ought, as recommended by this board, to have at least two-thirds of her coal aboard and at least two-thirds of her ammunition, or, I should say, her full supply of ammunition, because when we need the water-line belt armor, we need and will have a full supply of ammunition and two-thirds of her stores, and as much water in her tanks and double bottoms as she would ordinarily require under service conditions, and then have this Navy board that makes this inspection test the work of the constructor and see how well that ship is designed, whether she is overdraft or not, and if she is overdraft take steps so that the next ships that are built will not be overdraft.

The Chairman—But you do not think there is the necessity of going into that when she has what is called her sea trial?

Commander Key—Her builder's trial?

The Chairman—Her builder's trial.

Commander Key—No, sir.

The Chairman—Other witnesses have thought that was not desirable.

Commander Key—I do not think it is necessary.

The Chairman—You do not think that any injustice is done either to the builder or the contractor or the Government, or that the present method of conducting that preliminary trial in any way affects the value of the ship, considering that she is afterwards to have this other trial?

Commander Key—No, sir; there is only one suggestion I would like to make in that connection, Mr. Chair-

man, and that is that I would make the designed "normal" draft deeper, to correspond, as nearly as could be estimated, with her "fighting" draft under service conditions. It is unfair to the officers and men of the Navy, in a way, that a ship is run on the builder's trial and makes a big speed at light draft, because people outside the service will naturally say, "After she gets into commission why should she not keep up that speed under service conditions?" As a matter of fact, in the service she will probably be a foot and a half or two feet deeper in the water.

Senator Tillman—And a knot or two slower?

Commander Key—Yes; because, of course, the more water she displaces the more horsepower you must have to maintain the same speed.

Senator Tillman—Is not that a question of requiring the builders to furnish engines of sufficient strength to give us the horsepower, when she is loaded for business, rather than when she is stripped for a little pleasure run, to get a profit for the builder?

Commander Key—It certainly means that they get a fictitious speed.

Senator Tillman—Why should we buy fictitious speed?

Commander Key—There is no question of buying a fictitious speed. It makes no difference to the contractor whether the specifications state that she is to be run on her speed trial at 23 feet 6 inches at a certain speed, or at 24 feet 6 inches at a certain speed. He merely wants the specifications, upon which he submits his bid, to state the speed required for a certain mean draft.

Senator Tillman—But why bamboozle the country with what you call fictitious speed, by having a contract entered into which enables the contractor to have the ship tried when she is a foot more out of water than she will be when equipped for business?

Commander Key—That is a point that I think is wrong. I think that ought to be changed; it enhances the reputation of the designer and builder at the expense of the officers and men of the Navy, who must run speed trials at a deeper draft.

Senator Tillman—You think we ought to have the trial trip with the vessel loaded just as she will be when she is going into work?

Commander Key—Yes; as nearly as that load line can be estimated, just as this board recommended, precisely. The "designed normal load line" should be the fighting draft line, under service conditions, recommended by the Walker board.

Senator Tillman—Did they recommend that?

Commander Key—They recommended that. The failure of the board on construction to carry out the recommendation of the Walker board, approved by the Secretary of the Navy, is the cause of the error in the location of our water-line belt armor, not only with our ships in commission, but those now building.

Senator Tillman—Where is the report of that board?

Commander Key—It is in the Navy Department. I have quoted extracts from it.

Senator Tillman—Can we not have that report put into our record?

Rear-Admiral Capps—It is quoted already in my testimony.

Senator Tillman—The report of the Walker board?

Rear-Admiral Capps—Yes, sir.

Senator Perkins—Who was Secretary of the Navy at that time?

Commander Key—Mr. Herbert.

Senator Gallinger—If that should be done, would the Government require as great speed as they do now on the trial trips?

Commander Key—I presume they would have to cut down the speed somewhat.

Senator Tillman—They would have either to cut down the speed or increase the horsepower of the engines.

The Chairman—If you had the contractors' trial trip with the same load that she has when she is fully equipped and coaled and manned, would it not be the natural result that they could not make the contract for such a high nominal rate of speed?

Commander Key—No; they would have to cut it down some. I have a little extract here from a German naval constructor on the subject of our trials, if you would like to have it.

The Chairman—You can leave that with the committee. We are not going into that now.

Senator Gallinger—Is there any special difference between our requirements and those of foreign navies, so far as you know, in reference to the trial trips so far as the loading is concerned.

Commander Key—This German naval constructor points out the difference between our trials and the English and his own.

Senator Tillman—I should like to have him read that.

The Chairman—Let us have that. You can read it now.

Commander Key—This is by Mr. G. Neudeck, naval constructor, instructor of shipbuilding at the naval academy, a part of the German navy department. It is taken from the manual for instruction in naval architecture, published by the inspector of education in the navy, and it says:—

"On the subject of trial trips in general we may here add that the results of German trial trips are calculated with the greatest exactness, the ship being fully equipped with all armor, armament, ammunition, full coal bunkers, and all supplies on board, over the measured mile, not with patent log, and without current (in still water), so that comparisons with foreign trial trip results do not appear to be acceptable."

The Chairman—Is not that the same kind of trial trip that we have in the second trial?

Commander Key—No, sir; that, I think, is one grave criticism on our second trial, that they do not weigh the ship down to any particular point. They run the trial when she is in commission, but as far as putting two-thirds of the coal aboard and two-thirds of the stores, or corresponding weights, they do not do it.

The Chairman—What I am getting at is whether this comment which you are reading is not intended to apply, not to our contractor's trial, but rather to this second trial that we have when she is fully loaded? Do you know whether the Germans have any preliminary trial?

Commander Key—I am not so sure about that. His main criticism, I notice, is as to the fictitious speed that he says we get.

Senator Tillman—You had not finished reading it?

Commander Key—He says further:—

"Especially are the English and American trial-trip results, especially those of the great private firms, to be regarded with the greatest mistrust.

"A 'coach system' obtains, which consists in getting a very high speed with the ship as lightly loaded as possible with the assistance of all available means. How little such results are to be compared with actual performances is shown in English ships (for instance, the *Pow-erful* and *Terrible*), which are said to have made from 21 to 23 knots on their trials, and have been carried in the lists with these speeds, but which, under service conditions, even if it really depended upon it, can actually make not more than 17 to 18 knots, while the older German ships (for instance, the *Kaiserin Augusta* and *Gefion*) have actually attained their trial-trip speeds, 20 to 21 knots, even under service conditions, when it was ordered for service purposes, and without any special preparation.

"American ships were for a time looked upon as the fastest ships in the world. The results were published in the press as though they had been attained in fully equipped condition. At the same time there was shown a photograph of the ship during the trials, from which could be seen that the entire battery, battery armor, etc., was lacking. For the foregoing reasons German trial-trip results should only be compared with the English and American ones after 3 to 4 knots have been deducted from the foreign data. The data as to the very moderate coal consumption and great radius of action of foreign ships are likewise to be judged with great care after most critical examination."

The Chairman—I doubt whether the Germans have the light preliminary trial which we have.

Commander Key—I think they probably have something of the sort, but we have no trial of the armor efficiency of the ship, to show whether she is overdraft or not. To put that as the Walker Board recommended, and as the Secretary of the Navy approved, if we had a trial that called for two-thirds of the coal, stores, and so forth, and full ammunition aboard, and showed then how much armor belt was out of water, and what speed the ship made, that would be a valuable trial.

The Chairman—Do we not have that in this subsequent trial, the final acceptance trial; and if not, how would you change that from what it is? That is a very pertinent question. What more would you have?

Commander Key—In making that final acceptance inspection I would have it so that they loaded the ship with at least two-thirds of her coal and supplies and full ammunition, and everything under service conditions, as the Walker Board required, and a report made upon how much the vessel was overdraft or underdraft, and the height of her armor belt above the water; that would give you valuable data. When I began investigating this question of overdraft and the height of the armor belt, I

went to the board of inspection to see if there was any data in the files of that board that would assist me, and I found nothing of value with respect to the highly important question of overdraft. There were no data to be obtained, except that they had the mean draft of the ship and the amount of coal aboard. I could not get any other information.

The Chairman—This bears right upon the question of the armor belt and load line. If you know, state to the committee what the Department fails to do, or has in these late years failed to do, in respect to these late ships, that would show that the ship was not weighted down as she would be in actual service? What do they leave out? Do they put in the proper amount of coal, do you think?

Commander Key—I think they have apparently paid very little attention to it, as far as official inspections or official reports go. There have been reports from commanding officers and from the commander in chief of the North Atlantic Station, Admiral Evans, that his vessels were overdraft, but the matter does not seem to have attracted any attention. The last official investigation of the subject, so far as I know, is contained in the report of the Walker Board, which I have just read to you.

The Chairman—Do you know whether they had full ammunition or its equivalent weight on board at that time?

Commander Key—Our ships carry from 500 to 600 tons of ammunition; some of the older ships, I think, about 450 tons. But on these final acceptance trials they do not make any note of the stores or supplies on board. Of course, the log book shows the coal aboard, but they make no special examination of that to see if it is exactly correct, and there is no note of how much ammunition and stores are aboard.

The Chairman—You do not know whether they do actually have on board in these final acceptance trials the proper amount in weight of ammunition and stores or their equivalent? Of course, we can find that out by inquiring, but you do not know, do you?

Commander Key—I have asked unofficially the board of inspection for that information, and they said they did not have it.

The Chairman—That is, you think when you come to this acceptance trial that there ought to be a report upon all of these features, ammunition, stores, water, and everything, and an official report made to the Department, so that its files would show when any ship goes out and is accepted just how much she is loaded?

Commander Key—Yes, sir; and how much she is overdraft. As the chief constructor has told you, our ships are all overdraft. That is, they are designed to draw so much and they draw more. He says that it comes about from extra weights going aboard, and so on. I think this board of inspection ought to report how much they are overdraft, so that it can be corrected in the next ship, because the amount they are overdraft with respect to their "fighting" draft is the precise error in the distribution of the water-line armor belt.

The Chairman—Now the Secretary of the Navy can require that, or the committee in their report to the Senate can recommend that that be done.

Commander Key—Yes, sir.

The Chairman—That is a matter of departmental action.

Commander Key—Yes, sir.

The Chairman—And you think that ought to be done?

Commander Key—Yes; and I think it is highly important, because I have been astonished, in working out the location of our armor belt, how little official information can be obtained from the Department on the subject.

Commander Key—The chief constructor is here, and I think he can tell you what they do on the trial trip. They will bring her down to the designed "normal" draft, and they put enough coal in her to do it. They bring her down to that, and then they regulate it by the water. But they do not put so much coal and so much stores and so much ammunition aboard; all they do is to bring her down to this designed "normal" draft. They call it the normal draft, but it is not the normal draft under service conditions. It is a fixed draft, 23 feet 6 inches, or whatever may be the designed "normal" draft.

The Chairman—You have brought out what has not been brought out before, as to the differences between these two trials, which I think is very important. Now, it is almost 12 o'clock. Can you very briefly go into this question of turret hoists this morning?

Commander Key—Mr. Chairman, I have a lot of data on the defects I have previously indicated that I am sure will be very valuable to you.

The Chairman—We will not have that put in now. You can leave it with the committee and then if we want it we will put it in afterwards, but there is no time to have that read now.

Commander Key—I should like, then, to say that I have a very important lot of testimony to present to this committee, testimony that is very radically different from the testimony that has been given to you by the chief constructor, and I would like an opportunity to present it.

The Chairman—Well, the committee will decide about that.

Commander Key—It is the result of some work of my own, and I think it ought to be of very great value to you.

Senator Tillman—In what shape is that?

Commander Key—I have it in a table, in diagrams, and also type-written memoranda.

Senator Tillman—Prepared by yourself?

Commander Key—Yes, sir.

Senator Tillman—You are not giving us any hearsay?

Commander Key—No, sir; it is direct and correct information.

Senator Perkins—I think we ought not to exclude anything that will bring light on this subject.

The Chairman—I was going to say, that is for the committee to decide in executive session. If we bring testimony and criticism, aside from direct statements or opinions, and then allow that criticism to be recriticised, and the criticism again criticised, there will be no end to it.

Commander Key—No, sir; I have just notes of the testimony of the chief constructor that I want to show is not correct.

Senator Perkins—I think if he can show that the testimony given by Admiral Converse and Admiral Capps is incorrect and erroneous, it is our duty as a committee here to investigate that phase of it.

Senator Tillman—Why can he not put in writing what he wants to say on that line, and then it can go into his printed testimony, and we can read it; and then Admiral Capps and Admiral Converse can cross-examine him later if we find the time.

Commander Key—I only want to say to you that the chief constructor has been present at all these hearings, and he has cross-examined other witnesses, and I think it is only fair that his testimony should be reviewed.

The Chairman—Mr. Capps has been present at the request of the Secretary of the Navy, and Admiral Converse would have been here if he had been able, because they made the original investigation. Nobody has been present aside from the witnesses unless the Secretary has requested that they be present.

Commander Key—Senator, I should like to make a statement to the committee.

The Chairman—The committee will now have an executive session.

On Wednesday, March 11, the committee met at 10 o'clock a. m. Present: Senators Hale (chairman), Perkins, Gallinger, Burrows, Tillman, and Martin. Commander Albert L. Key appeared, Rear-Admiral Capps being also present.

The Chairman—Mr. Key, you may go on, and under the rule of the committee, you will confine yourself to independent statements from your own knowledge and observation. We were considering when we adjourned the question of the location of armor plate before going to the question of turret hoists. You will confine yourself to your own knowledge and observation; but it is not a part of the practice of the committee for one witness to take up the testimony of another and criticize it or decide whether it is or is not misleading. That, under the decision of the committee, you will not go into. Nobody can appreciate better than you what that order is. I will say that we will be very glad to hear your observation and your knowledge upon the subject. I was very much interested, and the committee was, yesterday in your statement about the acceptance trial. It brought to my mind some matters which had not been called to my attention before.

There is a great deal in your observation and your knowledge that you can communicate to the committee, but you will not be permitted to take up the statements of any witness and state that they are misleading, and in that manner criticize them, because there would be no end to that. You may state on those subjects, as I have said, anything that come within your own knowledge and observation.

Commander Key—Mr. Chairman, if I may do it, I have some diagrams here and a tabular statement that I

would like to explain. The data are authentic, and I should like to present it before the committee. It will not take me long.

The Chairman—You may present the diagrams.

Commander Key—And later, if I may, as I think you yourself suggested, I would like to submit a written communication to the committee.

The Chairman—Yes; you may submit a written communication, and the committee in executive session will consider what part of it or whether any of it will be made a part of the record. But you are entirely right about anything you have here that is authentic. That is allowed because that is observation and it informs us.

Commander Key—That is right, Mr. Chairman. I should like to say that I do not know that I made myself very clear yesterday, and that was really my main reason for wishing to appear before you this morning. I have diagrams and a table that I think will be of very great assistance to you. I do not think I could have explained it in writing, but I will deliver these to you. [Exhibiting diagrams.]

Commander Key—I will go over the tables first.

Mr. Chairman, I have taken a great deal of pains with this question. I want to make it plain to you, sir, and to the committee, that my only object is to get the facts before the committee so that you may be able to arrive at correct and just conclusions about the matter.

With reference to the table you will see that I have compared the British and American battle ships of the same period of completion. For instance, in the first column headed "Battle ships *Kearsarge* and *Kentucky*, completed in 1890," they are compared with the *Majestic* class of battle ships.

Commander Key—I think I had better take this table first, and go over it. The diagram I will go over a little later. I have compared there the *Kearsarge* and *Kentucky*, completed in 1890, with the *Majestic* class of battle ships, nine ships, completed from 1895 to 1898.

Now, that column goes down that way, comparing altogether four periods of naval construction of battle ships between America and England. The column headed "Completed" gives the year and date of the completion, and under the general heading "Water-line belt armor" is given the same data about the armor, in regard to the width of belt, the thickness amidships, and so forth, the lower edge below and upper edge above water at fighting draft, the draft found by the Walker Board. I will not go into that because I can explain it better by the diagram.

The next column gives the height of 12 and 13 inch guns above water at fighting draft.

Commander Key— . . . That was the draft found by the Walker board and approved by the Secretary of the Navy in 1896.

I should like to invite your attention to the fact that nowadays the battle ranges are considered to be between about 5,000 and 7,000 yards. It is considered that this will be the probable battle range on account of the great

increased power of the torpedoes now in use, 4,000-yard torpedoes, and we have to keep the battle ships out of their range. Consequently we have come around to the all big-gun ship, and 12 and 13 inch guns have become the important battery in ships, because they are the thick-armor piercers at long ranges. They are the guns that really punish the other ships.

I also want to invite your attention in that column to the fact that Admiral Evans squadron has seven ships with low after-turrets mounted on decks that at "fighting" draft are only about 9 feet above the water, and that such ships do not appear at all in the English list. They have not built any such ships since 1891. We are now completing two of that class which have just gone into commission.

Senator Tillman—Which two?

Commander Key—The *Mississippi* and the *Idaho*. The Japanese never have built such a class of ships. So in this matter we are about twelve years behind the English in that part of the school of design of battle ships.

The Chairman—Built in 1891?

Commander Key—Yes, sir; that was the last ship they laid down of that character. I have served as executive officer of the *Wisconsin*, and she is one of that class, and in a fairly heavy sea we had to batten down everything aft. It is plain that there must be at sea a good deal of weather in which you could fight turrets that are placed on deck, say, 17 feet high and that you could not fight on a deck 9 feet high. In that respect the Japanese and English are both ahead of us.

Senator Tillman—That means, if it means anything, as I understand it, that we could not fight these low-placed guns in any kind of weather but fair weather?

Commander Key—We could fight them in moderate weather, but not in what we call a rough sea. Of course the trouble with having ships of that type is that if the action should happen to be fought in rough weather, or if the enemy could put off the action until he had rough weather, we would be at a decided disadvantage. I mean, for instance, if Admiral Evans with his fleet of 16 ships was going to fight another fleet of 16 ships, and the other admiral knew, as he would, of course, that Admiral Evans had 7 of this type of ship in his fleet, and he had higher freeboard ships, he would postpone the action until he had rough weather if he could. Of course a sea fight is like a fight on shore. It takes two to make it; and if an admiral wants to put off an action he is generally able to do it. History shows that sea actions under steam take place when both admirals are ready for it. For instance, Rojestvensky deliberately engaged the Japanese. He knew he was going to find the Japanese somewhere along the Japanese coast waiting for him. Cervera came out of Santiago deliberately. He knew of course the Americans were waiting for him. If the fleets are on the high seas, and they have about the same speed, one can keep clear of the other just as with two armies ashore, one can retreat and the other follow. The stronger seeks the fight, the weaker avoids it until he is ready to bring off the action.

[Continued in June number]

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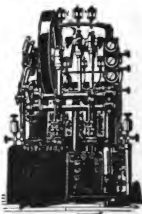
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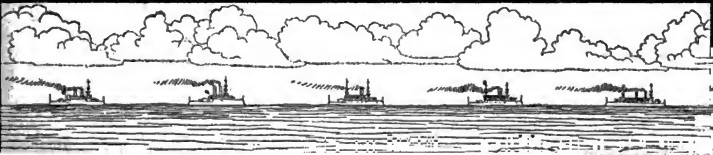
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GERMAN NAVAL DISCUSSIONS

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THE NAVY

Vol. II

WASHINGTON, D.C., JUNE, 1908

No. 5

NOTE AND COMMENT

THE naval service is to be congratulated upon the President's selection, on June 9, of Captain John Kennedy Barton, U. S. N., for appointment to the post of Chief of the Bureau of Steam Engineering of the Navy Department, in the vacancy created by the recent death of the late Rear Admiral Charles Whiteside Rae, who had filled the position since August 9, 1903.

Captain Barton was the logical man for the position, which carries with it control over the important field of steam engineering in the naval service; his record at the Naval Academy, where he fathered the present system of naval steam engineering, entitled him to this recognition and promotion. The appointment carries with it the rank and pay of rear admiral; and the appointee, upon his retirement from active service, will go upon the retired list with that rank.

Rear Admiral Barton is the founder of the new system of engineering education at the Naval Academy, having been sent to that institution, toward the end of the summer of 1902, to map out a new curriculum in accord with the requirements of the Personnel Act, which amalgamated the engineering branch of the navy with the line and had just become a law. Engineering is one of the vital branches of any modern navy, and under the new curriculum at Annapolis the American navy cannot be excelled in the development of engineer officers. Running throughout the course planned and established by Rear Admiral Barton, when as Captain he took up this work as head of the new Department of Marine Engineering and Naval Construction at the Naval Academy, is the great central idea of developing at that institution engineering officers for the naval service who shall be equally efficient on the deck and in the engine rooms below.

Rear Admiral Barton was born at Philadelphia, April 7, 1853, and will therefore not be eligible for retirement for seven years. He was educated at the Central High School in Philadelphia, and was appointed a cadet engineer in the navy, October 1, 1871, graduating from the Naval Academy in 1873. From that time he has been

closely identified with the development of that institution. Although he has served on stations in all parts of the globe, including Australia, and has filled every position in the line from that of cadet engineer up to the grade of Chief of the Bureau of Steam Engineering, spending fourteen years and seven months in sea service, he has been assigned to duty at the Naval Academy almost every time he has returned ashore and every time there was to be a change in the development of the course of instruction at that institution. At the time of his assignment to the Naval Academy, in 1902, he had been from April, 1901, to March, 1902, the fleet engineer of the Asiatic Squadron, and from the latter date until his transfer to Annapolis in August, 1902, he was on the cruiser *Brooklyn*.

In consequence of the enactment of the Personnel Act, the course of instruction for midshipmen was greatly increased, their curriculum widely extended, and the inauguration of the new system of engineering studies, as well as the construction of the new marine engineering buildings, was conducted under Captain Barton's auspices. He also had charge of the plans for interior equipment of the new academy buildings. Under his guidance, this work was conducted on such a broad scale that there is probably no school in the world that can now compare with the Naval Academy in the facilities it affords for instruction in marine and naval engineering.

Those who are familiar with the new order of things at Annapolis are aware that the aim of Captain Barton, as head of the Department of Marine Engineering and Naval Construction, in the instruction of midshipmen, was to fulfil conditions of the Personnel Law in both the letter and the spirit, — that is, to so round out and develop the system that the graduated midshipmen of the Naval Academy would be capable of performing all of their duties, both on deck and below in the engine rooms of our naval vessels, in an equally efficient manner. He also kept constantly in mind the fact that the future discipline and management of the engineering branch of the navy would be in the hands of these young officers receiving

their professional education at Annapolis, and that the nation and the government would hold them responsible for the proper performance of their technical duties.

After leaving the Naval Academy, on July 1, 1907, Captain Barton was ordered to duty at the League Island Navy Yard, Philadelphia, as head of the department of steam engineering, and until his present promotion he has occupied that important position. But his greatest work for the navy has been at the Naval Academy, with which he has been recurrently identified ever since his graduation. He has been a part of its system of education from that time. His work in the elaboration of a course offering finer marine engineering facilities than any other naval institution in the world is worthy of the recognition he has now received at the hands of the President.

Under his guidance the Bureau of Steam Engineering promises to continue to maintain the high standard which it has observed in years past.

IN THEIR reports upon the behavior of the Atlantic battleship fleet during its voyage to the Pacific, both Rear Admiral Evans and Naval Constructor Robinson point out that we are woefully weak when it comes to defense against torpedo attack. This is realized full well in the Department and remedies are being sought.

"The torpedo defense of all ships in our service is inadequate," says Rear Admiral Evans, in his report of March 6, which we quote in full elsewhere in this number. "This matter," he continues, "has recently been made the subject of an exhaustive report by the board to which Naval Constructor Robinson refers, but I have not seen that report and therefore cannot pass judgment upon his references to its contents."

Naval Constructor Robinson reports that he is "impressed with the fact of the apparent helplessness of the fleet against a concentrated and energetic night attack by torpedo boats. This subject was dealt with," he continues, "by a board of which I had the honor to be a member."

Evidently referring to the *Florida* tests, the Board on Construction says, under date of May 19, 1908, "Experiments are now in progress to determine the efficiency of elevated towers for fire-control stations; also as to the best arrangement of bulkheads for giving efficient protection to the ship against torpedo attack."

There are many other valuable suggestions in the Evans and Robinson reports, and these are, it is understood, being given careful thought by the Board on Construction in connection with the designs for the new vessels. Final decision will be reached on the several points

which are now under consideration by the naval designers after consideration of the second part of the *Florida* test,—the firing of latest type of torpedoes at certain compartments of the monitor *Florida*, in which experimental bulkheads of special design have been fitted at the Norfolk Navy Yard.

THERE is no reason why American shipyards, with American labor, ingenuity, and thrift, should not turn out completed engines of war as speedily as they do abroad. England was the first to set the pace for the world in the rapid construction of war vessels. She built the *Dreadnought* inside of a year, and now has contracts for the turning out of all of her heavier battleships and armored cruisers inside of twenty-four months. Japan has followed suit, and is turning out her newer vessels in two years. Germany has not quite reached that gait, and sets a limitation of thirty-six months upon her battleship builders. But Germany is waking up her shipyards, and the *Nassau* and *Blücher* will probably be built in less than the stipulated time of three years. France has been slower than any of the greater naval powers in her shipbuilding progress, on account of the faults and indecision of the dilletante Pelletan ministrations of the marine office, and is still at work on ships of her 1906 battleship programme, while some of her 1906 programme have only recently been placed upon the stocks.

With the *North Dakota* now almost forty per cent completed and promised as half done within a single year we

are to be congratulated upon having virtually reached the 24-month period of battleship construction. There has been no announcement that the contract time on the two new battleships is to be reduced to that limitation, but they will be pushed as much as possible after being started. Congress is to be congratulated also for having come to a realization of the importance of making the first appropriations for new vessels the very year they are authorized. The practice in the past has been to authorize new vessels one year and to appropriate the first funds for them the following year. Nothing can be gained by such a policy, and it is to be hoped that it has passed forever.

The Naval Act of May 13, 1908, carried \$7,000,000 toward the construction of machinery, armor, and armament for the new vessels which it authorizes, in addition to \$7,000,000 for armor and armament of vessels previously authorized. This does not include the \$1,500,000

**Torpedo
Defense
needed**

**New Era
opened**

which is appropriated separately toward the construction of two new fleet colliers, which are to cost \$3,600,000 in the aggregate, nor does it include the separate appropriation of \$3,000,000 made for the eight new submarine boats authorized this year at a total cost of \$3,500,000. Besides this, \$1,575,000 is appropriated this year for the purchase of three new steam colliers which have already been built, and the sum of \$9,832,962 is appropriated for construction and machinery for vessels heretofore authorized in previous naval acts, and \$400,000 towards the completion of the equipment outfit of new vessels.

That is, the Naval Act of May 13 last carries a total of \$30,307,962 for the increase of the navy, and nearly one-half of this sum goes to the account of vessels authorized at the same session of Congress. Congress has done its share. Let us hope that the Department will encourage the movement. If the Department lags behind, future sessions may use that as an excuse for returning to the old practice of granting "authority" one year and the "money" the following year.

The first week in June brought another year of eminently successful work to an appropriate conclusion at the Naval Academy at Annapolis, with the graduation of the Class of 1908. The midshipmen had a gay time with drills, mimic war, and exercises, and the last gem of the graduates was one of beauty and merriment. The ceremonies this year were of particular significance, since the class was the largest that ever left the academy at one time. It numbered two hundred members, exclusive of the late Midshipman Lucas, by whose death three weeks before graduation, the Naval Academy lost one of its brightest and most promising young officers. The graduating class of 1907 had a membership of more than two hundred, but was graduated in three separate sections, at different times of the year, according to scholastic standing.

A new feature of graduation week was the annual baseball game between Annapolis and West Point, on June 3, when the midshipmen vanquished the cadets. It was the first time that the game was played as late as June. The class german on June 4 was a very brilliant function, under the auspices of the first class. The infantry drill and dress parade occurred June 3, target practice with small arms and practical engineering exercises on June 4, while the graduation exercises on June 5 were followed with a farewell ball the same night to the graduates in the armory.

Saturday was "pull stakes" day. On that day the midshipmen of the three lower classes, nearly six hundred and ninety in number, embarked on the five vessels of the

Naval Academy Practice Squadron,—the cruiser *Olympia*, which was Admiral Dewey's flagship at Manila Bay; the cruisers *Chicago* and *Hartford*, and the monitors *Arkansas* and *Nevada*. On Monday, June 8, the squadron sailed from Annapolis for Hampton Roads. Contrary to the custom of former years, the ships will not this summer cruise along the New England coast, nor, in fact, take any extended cruise. Instead, headquarters will be established at Hampton Roads and weekly cruises will be taken outside of the Capes. The vessels will return to Hampton Roads every Friday evening, sailing again on Mondays, and during the week-ends the midshipmen will be allowed shore liberty. The time from Monday to Friday of each week is to be devoted to practical work, and from Friday until Monday there is to be as little work as and much relaxation and recreation as circumstances allow. The principal work of this year's cruise will be to make the midshipmen thoroughly familiar with every detail of all the appliances on use aboard ship, together with the leading characteristics of ship construction, subdivision, drainage, and ventilation, the proper methods of performing duty, and the exact relations that exist in a well-regulated warship between the various elements aboard.

More than a dozen of the midshipmen were placed aboard the new armored cruiser *North Carolina*, which has been ordered to Guantanamo for a shakedown cruise, having sailed from Annapolis for that destination on June 9. Some of the midshipmen were also assigned to the new scout cruiser *Chester*, which also sailed from Annapolis for Guantanamo on June 8 for a shakedown cruise. She will not return to the navy yard at Portsmouth, N. H., from that cruise until July 10. Fourteen of the midshipmen have been ordered to the new armored cruiser *Montana*, which will be turned over to the Government at the Norfolk Navy Yard June 15, and will be placed in commission about June 20. A similar number have been ordered to the new first-class battleship *New Hampshire*, which has just been commissioned, and twelve to the new battleship *Mississippi*. Twelve have been ordered to the new battleship *Idaho*, and four each to the new scout cruisers *Salmon* and *Birmingham*. The latter of these scouts is now shakedown at Guantanamo and has been ordered to return to the Boston Navy Yard by July 1, when the midshipmen will board her. Most of the members of the graduating class have been ordered to report on July 1 for duty aboard vessels of the service in Pacific waters, including the ships of the Atlantic battleship fleet and the armored cruiser squadrons, the former of which will soon sail for the Orient and the latter for Samoan waters.

SECRETARY METCALF announced informally, immediately after the adjournment of Congress, that the two new all-big-gun battleships authorized by the Naval Appropriation Act of May 13, 1908, are to be named the *Utah* and the *Florida*. At least one of these vessels must, under the law, be built and constructed under the direction of the Secretary of the Navy at one of the navy yards; and the Brooklyn Navy Yard, which built the *Connecticut*, has been notified of its selection for the construction of this new vessel. The second of these ships may be constructed either at one of the navy yards or by contract, in the discretion of the Secretary of the Navy.

Under the law enacted at the last session of Congress, the ships which may, in the Secretary's discretion, be built by contract, must be awarded to "the lowest best responsible bidder having in view the best results and the most expeditious delivery." In the construction of all of the new vessels authorized by the past session of Congress—the eight submarines excepted—the provisions of the Act of August 3, 1886, to increase the naval establishment, must be followed as to materials entering the vessels, their engines, boilers, and machinery, the contracts under which they are built, and notice of proposals, plans, drawings, and specifications; and, subject to compliance with that Act, these new vessels must under a clause in the law be of domestic manufacture.

Advertisement for bids for the construction of the contract-built ship has not yet been made, for the reason that the plans and specifications have not been completed. The Bureau of Construction and Repair, the Board on Construction, and members of the General Board of the Navy are now considering certain features of design, and as soon as the final decision is made and the drawings are ready, the call for bids will be issued. Under the new naval act, the two new battleships must be "similar in all essential characteristics" to the battleships authorized in 1906 and 1907,—that is, to the *Delaware* and *North Dakota*. No limitation is placed upon the displacement, but it is understood that it will be approximately 20,000 tons, although the two new ships—the *Utah* and *Florida*—may each be about seven feet longer than the *Delawares*.

This increase in length will be brought about if the decision is reached for the installation of Parsons turbines.

One reason why Parsons turbines could not be installed in the *Delaware* is the fact that they would occupy more space than was available in that ship's hull, unless changes were made in the design. Curtis turbines were ordered for the *North Dakota* and engines of the reciprocating type for the *Delaware*. No decision is understood to have been reached yet respecting the type of engines—whether turbine or reciprocating—that are to be installed in the *Utah* and *Florida*.

It is not unlikely that the new battleships will also be provided with an entirely new arrangement of military mast, somewhat similar to the open-work tower of latticed steel tubes which was tested during the recent experiment with the monitor *Florida*. The Department appears impressed with the performance of that mast, and is believed to be contemplating its use on the newly authorized battleships, although no announcement to that effect is yet authorized.

THE THREE new scouts—the *Salem*, *Chester* and *Birmingham*—have the three types of engines, the Curtis in *The "Salem,"* the first, the Parsons in the second, and *"Chester,"* reciprocating engines in the third. These *and "Bir-"* vessels have reached the trial stage, the *mingham* *Chester* having been delivered to the Government at the Portsmouth Navy Yard on April 24, and the *Birmingham* at the Boston Navy Yard on April 10, 1908. The *Salem* was put down officially as 96.40 per cent completed on May 1, and is now ready for her trials. The *Chester* did splendidly on her official preliminary trial recently, and the contractors for the *Salem* have just had a private trial which gives promise of excellent results when she is officially speeded.

Arrangements are also in progress for an endurance race between the three scouts, probably from Boston toward the Maine coast, in the near future, for the purpose of determining the relative values of the three vessels under identical conditions of wind and wave. Upon the result of this test may depend the decision which of the three types of engines is to be installed in the two new battleships, but it seems practically certain that the turbines will win, and that both of these new vessels will have turbines as their propelling power.

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BOOKS RECEIVED

A History of the United States Navy.

By John R. Spears. Illustrated; pp. xii 334.
Charles Scribner's Sons, 1908. Price, \$1.50.

Handbook for the Care and Operation of Naval Machinery.

By Lieut. H. C. Dinger, U. S. N. Illustrated, pp. ix
302. D. Van Nostrand Co., 1908. Price, \$2.00.

The Life and Letters of George Bancroft.

By M. A. DeWolfe Howe. 2 vols., illustrated, 294
and 363 pages. Charles Scribner's Sons, New York.
Price, \$4.00 per set.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

THE FIRST ALL-DREADNOUGHT FLEET

LONDON, May 31, 1908.

The first all-Dreadnought fleet is in sight. The individual all-big-gun-big-ship is itself no longer a novelty. The single-caliber ship has taken hold of the leading naval powers. There is not a power worth while in naval matters that is not now constructing this type of vessel. But, when it comes to collective Dreadnoughts, the Royal British Navy is far in the lead.

Before the end of 1910—or within approximately two years—the British Admiralty will be able to assign to the first fighting line the only practically homogeneous fleet of Dreadnoughts in the world. This does not include the two new first-class battleships of the *Lord Nelson* class, which have just been ordered into commission and which are almost Dreadnoughts. Without reference to the *Lord Nelsons*, then, the British Navy will be able to muster a dozen of single-caliber ships of the Dreadnought class, by the fall of 1910.

Standing alone, a single Dreadnought would not be any great addition nautically to a fleet of ordinary battleships. Her superior speed would be almost useless except under exceptional circumstances, and the greater range of her more powerful guns could not be put to practical use without rendering the vessels of lesser range inert. This type of ship was first laid down as an experiment. Having passed through the experimental stage into the permanent building programs of the powers, she is now passing from

the single-ship stage into the formation of divisions and squadrons of fleets.

With this idea in mind, the Admiralty has been improving the original type ship, and at the same time laying down new keels in such numerical order as to have three divisions of these large ships ready for the first line of battle at the end of two years. Each of these divisions will comprise four units. Two divisions will be made up entirely of battleships, and the third will consist of four cruiser battleships of the *Invincible* class. Great Britain stole a march on the balance of the world when she styled the *Invincibles* "armored cruisers." They are now being called "battleship cruisers" and "cruiser battleships." It makes little difference how they are designated. They are in effect Dreadnoughts, if not so in name. They are nothing less than powerful single-caliber battleships, and the rest of the naval world now knows it.

This fleet of a dozen Dreadnoughts, therefore, will be just twice the size of anything of the kind that the German Empire will be able to muster within the same period. Our Teutonic consins will not be able to assemble more than four German Dreadnoughts by the end of 1909. By December of that year they will probably have ready the *Nassau*, the *Ersatz Sachsen*, the *Ersatz Baden*, and the *Ersatz Württemberg*. These are all-big-gun battleships. In the same month they are expected to have ready for commissioning the *Blicher* and "*F*," both of which are so-called armored cruisers, representing the first Continental reply to the British *Invincibles*. It is even ques-

tionable if the Germans will have more than half of these new ships in their fighting line by the end of 1910, since *F* cruiser is not scheduled for completion before November, 1910, and the *Baden* and *Württemberg* were laid down under contracts by which they are to be finished in the last quarter of that year.

The new German armored cruiser "*G*" and the three new German *Dreadnoughts* of this year's program—which are to be temporarily designated as the *Ersatz Siegfried*, the *Ersatz Oldenburg*, and the *Ersatz Beowulf*—have not yet been laid on the stocks, and at Germany's present rate of shipbuilding cannot be finished before 1911. Whatever ships are authorized by the British Government in next year's 1909 naval program—and it will probably not be less than four vessels of the *Dreadnought* type or better—can, if laid down in the summer of 1909, be got ready by 1911, at the rate of construction now prevailing in British shipyards,—twenty-four months for a ship.

But, excluding the probable naval program for next year, where is the British Navy to find the twelve units needed for this initial fleet of *Dreadnoughts* within the next two years? The answer is quite easy; and it will not be a "paper fleet," either. Its composition will be as follows:—

FIRST DREADNOUGHT DIVISION — BATTLESHIPS ONLY

Vessel	Authorized	Displacement	Speed	Guns
<i>Dreadnought</i> ...	1905	17900	21.25	10 12-inch
<i>Bellerophon</i> ...	1906	18500	21.00	10 12-inch
<i>Téméraire</i>	1906	18500	21.00	10 12-inch
<i>Superb</i>	1906	18000	21.00	10 12-inch

SECOND DREADNOUGHT DIVISION — BATTLESHIPS ONLY

Vessel	Authorized	Displacement	Speed	Guns
<i>St. Vincent</i>	1907	19250	21.00	10 12-inch
<i>Collingwood</i> ...	1907	19250	21.00	10 12-inch
<i>Vanguard</i>	1907	19250	21.00	10 12-inch
<i>Anson</i>	1908	20000	21.00	10 12-inch

THIRD DREADNOUGHT DIVISION — BATTLE CRUISERS ONLY

Vessel	Authorized	Displacement	Speed	Guns
<i>Invincible</i>	1905	17250	25.00	8 12-inch
<i>Inflexible</i>	1905	17250	25.00	8 12-inch
<i>Indomitable</i> ...	1905	17250	25.00	8 12-inch
<i>New Invincible</i> .	1908	18000	25.00	2 12-inch

All but two of these vessels have been either placed upon the stocks or finished; one is already in commission,

three more will be commissioned within nine months, another series of three will be ready, the eighth will be finished by the end of 1909, and the other four, representing the 1908 building program, will be ready for use by the end of 1910. Are we correct in this assertion? Their keel-laying, launching and completion dates tell the whole story as follows:—

FIRST DREADNOUGHT DIVISION — BATTLESHIPS ONLY

Vessel	Keel laid	Launched	Completed
<i>Dreadnought</i> ...	Oct. 2, 1905	Feb. 10, 1906	Oct., 1906
<i>Bellerophon</i> ...	Dec. 3, 1906	July 27, 1907	Dec., 1908
<i>Téméraire</i>	Jan. 1, 1907	Aug. 24, 1907	Jan., 1909
<i>Superb</i>	Feb. 6, 1907	Nov. 7, 1907	Feb., 1909

SECOND DREADNOUGHT DIVISION — BATTLESHIPS ONLY

Vessel	Keel laid	Launched	Completed
<i>St. Vincent</i>	Dec. 30, 1907	Progressing	Dec., 1909
<i>Collingwood</i> ...	Feb. 3, 1908	Progressing	Feb., 1910
<i>Vanguard</i>	April 2, 1908	Progressing	Apr., 1910
<i>Anson</i>	Keel to be laid this summer.		

THIRD DREADNOUGHT DIVISION — BATTLE CRUISERS

Vessel	Keel laid	Launched	Completed
<i>Invincible</i>	April 2, 1906	April 13, 1907	April, 1908
<i>Inflexible</i>	Feb. 5, 1906	June 26, 1907	Feb., 1908
<i>Indomitable</i> ...	Mch. 1, 1906	Mch. 16, 1907	Mch., 1908
<i>New Invincible</i>	Authorized 1908; to be laid down this year		

The contract time for building British battleships is twenty-four months. The contract time in Germany is thirty-six months. In the United States it runs from thirty to forty months. The *Dreadnought* was built within a single year. But she was the first of her class, and was rushed through to completion in order that she might have her trials soon enough for the results to be considered in connection with subsequent vessels of the same class. The table given above shows that enough ships for one complete division are now ready for the battle line. They are the *Dreadnought* and the three battleship cruisers of the *Invincible* class which are now going into commission.

The total displacement of these three divisions of *Dreadnoughts* will be not less than 221,200 tons. This is approximately the displacement of the fleet of sixteen battleships which Rear Admiral Evans took on his voyage to the Pacific Coast of the United States. The sixteen battleships in the Atlantic fleet making that voyage had an aggregate displacement of 223,436 tons. In other words, the twelve ships of the proposed *Dreadnought*

fleet displace in the aggregate 2,236 tons less than the sixteen ships of the Atlantic Fleet which made the voyage around South America. Another way of putting it would be to say that four ships less in number displace the same number of tons.

Now, as to the gun-fire of the *Dreadnought* fleet. The twelve vessels mentioned carry a total of one hundred and twelve big guns. They are all of the same caliber—twelve inches. They represent the greatest advance yet made in the British 12-inch naval gun. All except sixteen of these guns represent a broadside fire. If the twelve *Dreadnoughts* were stretched out in single column formation with the greatest possible number of their heavy guns trained on the beam, they would present to the enemy a total broadside fire of ninety-six big guns, each of 12-inch caliber.

Compare this with the sixteen battleships which Rear Admiral Evans took to the Pacific Ocean. If they were stretched out in single column formation they would be able to present a broadside fire of forty-eight twelve-inch and sixteen thirteen-inch guns. The total number of guns that can be trained on a single broadside in the sixteen American ships is two hundred and twenty-two, but fifty-two of them are of 8-inch caliber, thirty are of 7-inch caliber, sixty-two are of 6-inch caliber, and fourteen are of 5-inch caliber. All below the 12-inch caliber would be of lesser range than the single-caliber 12-inch batteries of the all-big-gun ships. The total of guns of over 4-inch caliber in the main battery of the sixteen American vessels is three hundred and fifty-six, distributed as follows:—

	In Turrets.			In Broad-sides.			Speed.
	13"	12"	8"	7"	6"	5"	Knots.
<i>Connecticut</i>	0	4	8	12	0	0	18.78
<i>Kansas</i>	0	4	8	12	0	0	18.09
<i>Louisiana</i>	0	4	8	12	0	0	18.823
<i>Vermont</i>	0	4	8	12	0	0	18.33
<i>Virginia</i>	0	4	8a	0	12	0	19.01
<i>Georgia</i>	0	4	8a	0	12	0	19.26
<i>New Jersey</i>	0	4	8a	0	12	0	19.18
<i>Rhode Island</i>	0	4	8a	0	12	0	19.011
<i>Alabama</i>	4	0	0	0	14	0	17.01
<i>Illinois</i>	4	0	0	0	14	0	17.45
<i>Kentucky</i>	4	0	4a	0	0	14	16.90
<i>Kearsarge</i>	4	0	4a	0	0	14	16.82
<i>Ohio</i>	0	4	0	0	16	0	17.82
<i>Maine</i>	0	4	0	0	16	0	18.00
<i>Missouri</i>	0	4	0	0	16	0	18.15
<i>Minnesota</i>	0	4	8	12	0	0	18.85
Total.....	16	48	80	60	124	28	

(a) Four 8-inch guns in superposed turrets.

If the *Dreadnought* fleet of twelve vessels, which the Royal Navy will have at the end of two years, were drawn up in line of battle confronting the twelve vessels in the American battleship cruise, the former would present ninety-six broadside guns of 12-inch caliber to the sixty-four broadside guns of 12-inch and 13-inch caliber on the latter ships. Besides this advantage, the *Dreadnoughts* average 21 knots for the battleships and 23 knots for the cruiser battleships of the *Invincible* class, while the average speed of the American vessels, according to their trial performances, would run from 17 to 19 knots.

Any two of the *Dreadnought* class would present as many 12-inch guns on a broadside as any four of the American vessels named. A division of four *Dreadnoughts* would present a broadside fire of thirty-two guns, none of which would be of less than 12-inch caliber; while a division of the same number of units, consisting of the *Connecticut*, *Kansas*, *Louisiana*, and *Vermont*, would be able to present a broadside fire of only sixteen guns of 12-inch caliber, sixteen guns of 8-inch caliber, and twenty-four guns of 7-inch caliber. The former division would have 21 knots trial speed, and the latter would average a fraction over 18 knots trial speed.

This comparison is not made for the purpose of considering the vessels of the *Connecticut* and *Vermont* type as in the same class as the *Dreadnought*; but, on the contrary, to indicate that the latter are not ship for ship equal to the all-big-gun vessel. I merely wish to indicate the value of the *Dreadnought* type of vessel, which type has now taken hold of the admiralties of the world and is bringing forth replies to the British prototype from the naval constructors of Japan, Germany, America, Brazil, Italy, Austria, and France, while even Russia and Spain are working them out on paper, although apparently not yet able to make actual headway in their construction.

THE PRESENT GERMAN NAVAL DISCUSSIONS

BERLIN, May 16, 1908.

An important addition to Germany's armored cruiser squadron will be furnished by the *Blücher*, launched at the Kiel Imperial Dockyard on April 11. Upon completion the displacement of the *Blücher* will approximate 15,000 tons; a speed of 23 knots is hoped for from her three sets of compound reciprocating engines, steam being provided by water-tube boilers of the Schichau type.

As usual, nothing definite is yet known regarding her armament, but there is some talk of the cruiser carrying no guns of a greater caliber than 8.2-inch. While this seems at variance with the present trend of international opinion relative to naval armament, the statement emanates from an authoritative source, and her modest displacement apparently excludes the provision of the 11-inch weapons which had been mentioned in connection with the vessel. The *Blücher's* complement will consist of 24 officers and 767 men, and her cost upon completion will total \$6,850,000. She represents the last armored cruiser of comparatively small displacement that will be constructed in this country, for her successors will probably displace 10,000 tons and be considerably more powerful than the British *Invincibles*. But the building of small protected cruisers goes on apace, though there is some controversy as to the policy of turning out in large numbers craft whose value in war time would be very limited. They may be regarded as the German equivalent of the scout cruisers now possessed by the American and British navies, but their high speed, sea-going qualities, and rapid-firing armament render them eminently suited to the rôle of commerce destroyers.

During the coming summer extensive improvements in accommodation and equipment will be made at the Kiel Dockyard. A large plot of land has been acquired from the Germania works, adjoining the dry docks, and here there will be erected a large smithy and foundry, together with a central electric power station. Concrete slips will front the purchased land, large enough to accommodate the biggest battleships and cruisers now in course of construction, and the harbor area in front of the slips is to be dredged to a depth of over ten fathoms, in order to provide moorings for an immense floating dock, shortly to be built. This dock will be large enough to receive 20,000-ton vessels, and will take the place of the old dry dock "V," which is falling into disrepair.

The high-seas battle fleet assembled off Heligoland on May 5 for the spring maneuvers. The first and second squadrons steamed from Kiel through the Skagerrak, while the cruisers went through the Kaiser Wilhelm Canal and the mouth of the Elbe to Heligoland. The squadron maneuvers lasted until yesterday (May 9), and to-day the flagship *Deutschland* entered the Cuxhaven roadstead, where she is to take on board Prince Heinrich, the Commander-in-Chief, who arrives there from Kiel with the officers of his staff. To-morrow tactical exercises will be carried out off the mouth of the Elbe, and the ma-

neuvres will end with an attack on Kiel, on June 5. Each squadron consists of eight battleships and one small protected cruiser, but eight armored cruisers and an extensive flotilla of torpedo craft will also participate in the maneuvers.

Following the long series of mishaps to British warships, the topic of the hour in naval circles here relates to the utility of night maneuvers without lights, and numerous theories are advanced as to the degree of value which attaches to such exercises. The objects may be summed up under three heads: (1) To exercise the crews in searching for vessels which are known to be within certain defined limits; (2) to practice repelling torpedo attacks, and (3) to give officers opportunities of handling vessels in darkness. Taking these points seriatim, is it not reasonable to assume (1) that searching operations could be carried out without lessening their war-training value if the vessels engaged in the search carried lights; (2) that a torpedo attack could be successfully repelled by the cruisers carrying lights and the destroyers steaming without lights, and (3) that if it is considered a necessary feature of war training to maneuver flotillas and squadrons without lights and under conditions of pitch darkness, the object could be achieved by imposing certain limitations? Among German naval officers there appears to be a growing opinion that maneuvers without lights teach nothing that could not be learned equally well by introducing certain safeguards against the possibility of collision. It is true that up to the present the Imperial Marine has been remarkably free from accidents during night maneuvers, but there is no guarantee that such a happy state of affairs is going to continue.

A new dockyard will shortly come into being at Brunsbüttel, at the North Sea entrance of the Kaiser Wilhelm Canal, and the fortifications already existing at that important strategical point are to be greatly augmented. "Blue-water" principles are fast gaining ground in Germany, and a reaction has set in against the construction of immobile land defenses; consequently, this highly important branch of the naval service is liable to suffer from starvation and discouragement. In view of the excellent results attained by the Coast Artillery during the recent prize shooting, however, the official attitude would appear to be unjustified. The coast defense gunners are among the most highly trained specialists in the entire Marine; in war time they would be responsible for the safe-keeping of the great mercantile harbors and naval ar-

senals, which would offer tempting bait to the enemy's torpedo craft, and to this end all their training is conducted with a view to rapid and accurate shooting. Searchlight drill, range and position finding, and endless practice in rapid loading and aiming form the routine tasks in the big forts at Friedrichsort, Wilhelmshaven, Heligoland, Cuxhaven, and elsewhere. It is to be hoped, therefore, that the Coast Artillery will receive equal consideration with the Fleet in any questions of finance or improvement.

An interesting discussion is going on in the German technical press over the merits of medium caliber naval and coast artillery, inspired chiefly by the news that in their latest battleships the Japanese are retaining the 6-inch rapid-firer as the secondary battery. Since Japan possesses exact and exclusive information gained at first hand respecting the utility of this weapon, doubts are being raised as to whether the decision to exclude all but big caliber guns from our latest units is prudent. The big gun enthusiasts argue that the medium-caliber weapon is impotent against modern armor, and too unhandy for use against torpedo boats; on the other hand, its advocates insist that as all ships are not yet clad in modern armor, and as improvements in mountings and breech mechanism enable the gun to be fired with a rapidity practically equal to that achieved with the 14-pounder, it is still destined to play a not inconsiderable part in future naval actions. There is, of course, no 6-inch gun in the German Navy, but the 5.9-inch is very similar in every way, save in respect of weight. Furthermore, it is pointed out that several foreign powers are increasing the size of their torpedo craft, and even contemplate giving these vessels some armor protection, so that they may be able to resist the fire of 6-pounder and 14-pounder guns. Then the medium-caliber weapon will come into its own again. The improved 5.9 is a formidable weapon in many respects, since the system of pivot-mounting has been introduced by Krupp,—a vast improvement over the old sliding carriage in which many of these guns on board our battleships and cruisers are still mounted, though they are gradually being replaced by the modern pattern. The sliding carriage has the considerable disadvantage of curtailing the effective life of the gun, as the recoil after discharge does not follow a line parallel with the axis, but at a more or less acute angle with it, and thus the barrel eventually shows a tendency to bend; in a 40-caliber gun the average deflection at the muzzle is four-fifths of an inch,—a circumstance which is ob-

viously not conducive to good marksmanship. A second and still greater disadvantage of the sliding carriage is that the recoil is not taken up by the brake, but expends a good deal of its force on the stationary mountings and the deck itself; and, as in high elevations the vertical action of the explosion is very great, the ship's structure suffers to no inconsiderable extent. To counteract this defect it was necessary to construct the mountings on a very heavy and extensive scale, besides giving additional support to the gun-deck, the natural result being an important increase in the total displacement of the vessel. The naval architect naturally desires the gun to be as light as possible, and its recoil to throw the least possible strain on the structure, as only under these two conditions can the displacement be kept within limits. Moreover, the less heavy the gun the higher above water level it can be mounted, having reference to the stability of the vessel; and elevation is an important factor in good shooting.

The improved mountings were first installed in the battleships of the *Wittelsbach* class, these ships carrying a secondary battery of eighteen 5.9-inch guns, and were later utilized in the mounting of the 6.7-inch guns on the *Deutschlands*. The weapon reposes in a cradle which corresponds to its every movement, and is connected with an hydraulic brake built into the cradle. This cradle has trunnions on which both it and the gun pivot, when the muzzle is elevated or depressed. The brake is at all times parallel with the gun's axis and takes up the whole force of the recoil. The mountings proper have, therefore, only to bear the strain of the brake's action, which is estimated at one-tenth of the power of the total recoil. This arrangement allows of very light mountings and the elimination of extra support to the gun-deck, besides doing away with the strain on the gun muzzle caused by the acute angle of the recoil. In every way the improved mountings are vastly superior to the old sliding carriage, and it is hoped that they will shortly be installed on board the five vessels of the *Kaiser* class.

An important change in the Marine Administration has just taken place, Admiral Büchsel, chief of the Admiralty Staff, having been retired at his own request. His successor to this high office has been appointed in the person of Admiral Baulissin, Aide-de-camp to the German Emperor. Admiral Büchsel held his late position for six years, during which period he played a prominent part in introducing sweeping reforms in many branches of the service. He entered the Navy in 1865, at the age of seventeen, and was a shipmate of Admiral von Tirpitz,

the present State Secretary of the Navy. During the Franco-German war of 1870-1 he served on the frigate *Augusta*, which patrolled the French coast for the purpose of preventing traffic in arms and munitions from America. This service was not without peril, for the French naval forces were much more numerous and powerful than the German, but the little *Augusta* succeeded in evading the enemy's cruisers and made several important captures. She intercepted vessels carrying provisions and clothing to the French army in the south, and eventually had the honor of being pursued by an entire squadron of hostile cruisers into the North Sea. Admiral Baulissin, the newly appointed chief of staff, has also seen a great deal of service, and held several important commands. His appointment is very popularly regarded throughout the Fleet.

Another change of considerable importance occurred last month when Vice Admiral Wodrig, Chief Superintendent of Dockyards, was superseded by Admiral Breusing, who, until this last appointment, was Superintendent of the Dockyard at Wilhelmshaven. Admiral Breusing went to Wilhelmshaven only six months ago, and it was generally understood that his position there was purely temporary. During his brief tenure of office, however, he made himself thoroughly acquainted with every detail connected with the departments under his control, and thus qualified himself for the high position to which he has now been called. His successor at Wilhelmshaven has not yet been named, but the officer most likely to be appointed is at present in command of a battleship. It is probable, therefore, that the Wilhelmshaven Dockyard will remain without an official head for some months to come.

When Prince Adalbert of Prussia, who holds the naval rank of senior lieutenant, was appointed to the command of the protected cruiser *Danzig*, the Liberal Press started an agitation against what it termed "the formation of royal bodyguards in the executive ranks of the Navy." It was alleged that the officers of the *Danzig* were, without exception, noblemen, and that any untitled addition to the ward-room assembly was rigidly excluded. These allegations created something of a sensation, and impelled the official organ of the Admiralty to print a prompt and vigorous denial. No undue proportion of noblemen, it declared, existed amongst the *Danzig's* officers, nor were any differences of social status recognized on board German warships. The training ship *Charlotte*, on which Prince Adalbert commenced his naval education and where he was thrown very much in the company of his

shipmates, carried five titled and nine untitled cadets; the ward-room members of the battleship *Preussen*, flagship of the Second Squadron, on which the Prince was an officer of the watch, included, among nineteen officers, only four of noble birth. The Imperial yacht *Hohenzoellern* is cited as another example; this vessel is commanded by an untitled officer, the other executives being three noblemen and four commoners.

Superficial as this question may appear at first sight, it has in reality a bearing of the utmost importance upon the efficiency of the Imperial Marine. Official denials and statistics notwithstanding, there is good reason for believing that privilege plays too important a part in the ward-rooms of German warships; it is idle to deny that its influence is not evident when promotions are afoot. And the regrettable circumstance is that all efforts at reform in this connection are impotent; the trouble is too deep-rooted to be eliminated by half measures. It is strange that even the inherent feudal spirit of the German nobility should survive and flourish amid the stress and informality of life afloat,—the most democratic environment conceivable. While there is an absence of unfettered comradeship among the officers themselves, how can that spirit of mutual respect and good understanding, which is more essential than iron discipline for true co-operation, exist between the ward-room and the fore-castle? I venture to regard this question as one of vital moment to the future welfare of the German navy, but its significance is apparently ignored by those who spend all their enthusiasm in advocating reform in material, to the neglect of the surely not less important human element.

The entry of the new battleship *Schleswig-Holstein* into commission has not taken place under very favorable auspices. On the 25th of April she left the Germania Works at Kiel, where she was built, to undergo her first trial trip; but hardly had the big vessel left her slip when she ran aground on an uncharted shoal in the mercantile harbor, where a dozen tugs labored for an hour before they succeeded in getting her off. It having been ascertained that she had received no damage, the *Schleswig-Holstein* proceeded on her machinery and steering trials, which are understood to have been quite successful. Since then, however, the battleship has been in dock, and it is rumored in Kiel that the structure sustained a severe strain during the grounding. The authorities are very reticent on the subject.

H. C. B.

THE ATTACK ON THE *FLORIDA*

The first half of the long-contemplated experiment with the modern coast-defense monitor *Florida* took place the morning of May 27, in the lower reach of the Chesapeake Bay, in the vicinity of the Thimble Shoal light. While the experiment was not prosecuted as far as it might have been for the purpose of ascertaining the effect of the impact of a modern 12-inch high-explosive shell upon the port plate of the *Florida's* forward turret, and therefore complete conclusions cannot be reached as to the effect of such a shell upon the turret bearings and its interior mechanism, valuable lessons have been learned and the test was well worth while.

Only seven shots were fired at the *Florida* from the guns of the coast-defense monitor *Arkansas*, her sister ship. One of these was a sand-loaded range shot levelled at a canvas target, to make sure of the distance between the two vessels. A single 12-inch high-explosive shell was then directed against the turret of the *Florida*, and, following that, five other shots were discharged at the experimental mast built of steel tubing, after the fashion of lattice-work, upon the stern of the target ship.

The port-plate of the *Florida's* turret was penetrated and badly shattered, but the 12-inch shell which delivered this terrific blow spent its energy outside the turret and failed to reach the interior. After the delivery of this shot, the turret of the *Florida* worked perfectly upon its bearings, none of the interior apparatus was disturbed, and both of the *Florida's* 12-inch breech-loading rifles were able to be trained and elevated. Therefore, it was given out that the result of this experimental shot was a victory for the turret of the target vessel.

Sight must not be lost of the fact, however, that the 12-inch shell which struck the *Florida's* port-plate failed to detonate, and that unexploded grains of the high explosive which filled the shell before it was shattered by the impact were scattered around the deck of the *Florida* after this portion of the experiment had been completed. It is, of course, problematical what the effect would have been in the event of the complete detonation of the *Arkansas's* shot, but it cannot be contended that the result would probably not have been far different, if detonation had occurred, or if the firing ship had followed up the first projectile with another missile from her remaining 12-inch gun. The result might have been even

more serious if the shell had been landed between the gun ports, instead of at a point to the starboard of the starboard gun of the *Florida*.

While there is ample room for discussion respecting the actual result of the turret shot, there is little doubt concerning the other feature of the experiment—the five shots at the experimental mast, which stood the test successfully, although struck by four of the shots in such manner as to sever nearly a dozen sections of the steel tubing used in the construction of the mast. It is also important, in this connection, that it should be understood that this mast was erected at an angle like the leaning tower of Pisa, and carried an extra weight of some tons at the top; that is, the mast was given the severest possible test and was not weakened by the series of shots.

The test was by no means as severe as that to which the British Admiralty subjected the battleship *Hero* at Kentish Knock on November 30, 1907, when vessels of the Channel Fleet steamed past the old British warship in battle formation, at a range of from six thousand to eight thousand yards, and discharged some one hundred and thirty shots at her. One-fourth of these struck the *Hero*; and when the smoke of battle had cleared the vessel was a wreck, her side peppered with shot-holes, her upper deck blown up with an explosive shell, her fire-control system a wreck, her mast torn with shell fragments, and her funnel shot away. Compared with the *Hero* experiment, which resulted in the striking of that comparatively modern vessel from the Royal Navy list, the test with the *Florida* was a rudimentary lesson. However, the *Hero* experiment had been preceded some half a dozen years before by a similar test, which aroused no popular outcry against the actual destruction of the vessel, while the *Florida* proceeding was the first of its kind in the American Navy.

Popular sentiment had not been sounded, and officials of the Navy Department, having in mind the clamor raised a few years ago when former Secretary Bonaparte proposed to have Old Ironsides sent to a warrior's death in target practice on the high seas, were unwilling to doom the *Florida* to destruction. This idea was dominant in the preliminaries for the experiment, and everything was so arranged that the *Florida* might, if possible, be saved, even if sunk. Now that the test is over and no

opposition has been aroused, it would be greatly to the benefit of the entire naval service if future tests more severe in character, even if they risk the life of the ship, are undertaken, for only by actual demonstration can the correct theories be established and the wrong ones discarded.

The *Florida* is one of four single-turret harbor-defense monitors authorized by Congress in May, 1898, during the progress of the Spanish-American War, the other three being the *Arkansas*, *Nevada*, and *Wyoming*. They each have a displacement of 3,235 tons, their contract speed was 11.5 knots, and each vessel of the class measures 252 feet on the water line, 50 feet extreme breadth, with 12½ feet mean draft. The fastest of the class is the *Nevada*, which has registered 13.04 knots. The *Florida* has 12.40 to her credit, and the *Arkansas* 12.03 knots. The main battery of each consists of two 12-inch breech-loading rifles in single turrets forward and four 4-inch rapid-firing guns. The *Florida* was built at the Lewis Nixon shipyards, at Elizabethport, New Jersey, and the *Arkansas* at the Newport News yard, in Virginia. The contract price of the former was \$925,000, and of the latter \$960,000, and both vessels were completed seven years ago.

OFFICIALS PRESENT

The test in which these modern monitors figured occurred within gun-range of the scene of the famous conflict between the original *Monitor* and the *Merrimac* in Hampton Roads during the Civil War, and was witnessed by prominent naval and military officers and a small corps of newspaper correspondents. Among the navy's representatives were Rear Admirals Newton E. Mason, chief of the Bureau of Ordnance for more than four years; Albert R. Coulen, president of the Naval Examining and Retiring Boards; Richardson Clover, president of the Board of Inspection and Survey; W. S. Cowles, chief of the Bureau of Equipment; Chief Naval Constructor Washington Lee Capps, chief of the Bureau of Construction and Repair; Captain Raymond P. Rodgers, chief of the Bureau of Naval Intelligence; Captain Sidney A. Staunton and Captain Frank F. Fletcher, members of the General Board of the Navy; Captain Alfred Reynolds, of the Norfolk Navy Yard; Commander Washington I. Chambers, of the Bureau of Ordnance; Commander Joseph Strauss, who is in charge of the Indian Head Naval Proving Station; Lieutenant Commander George B. Bradshaw, assistant inspector of target practice; Lieutenant Commander Henry B. Price, of the Bureau of

Ordnance; Lieutenant Richard D. White, assistant inspector of target practice; Professor of Mathematics Philip R. Alger, who is a member of the Board on Naval Ordnance, and Colonel W. T. Littleton, of the United States Marine Corps.

The army ordnance experts took a great interest in the experiment and were well represented. Those who observed the test on behalf of the army were Brigadier General Arthur Murray, Chief of Artillery; Brigadier General William Crozier, Chief of Ordnance; Brigadier General W. W. Wotherspoon, President of the Army War College; Captain John C. Gihmore, Jr., Coast Artillery, of the Bureau of Artillery; Captain Harry G. Bishop, of the Artillery Corps, who went from Washington to the scene of the experiment on the mine planter *Ringgold*; Major Beverly Davis, Ordnance Bureau, inspector of the new powder tested, and Major Richmond P. Davis, Captain Henry J. Hatch, Captain Alston Hamilton, and Lieutenant Halsey Dunwoody, members of the Artillery Board. An army tug from Fort Monroe, where the Artillery School of the Army is situated, conveyed thirty officers of the class in the school of instruction and more than a score of officers of the Artillery School to the scene of the experiment. Captain Herman W. Schull, of the Artillery Corps, was the official representative of the army present designated to make the official written report on the tests.

THE EXPERIMENT

The weather was ideal for the test, and when the official party arrived on the night boat from Washington the morning of May 27th they found a tug at the Old Point Comfort landing waiting to take them to the cruiser *Montgomery*, which had been lying at anchor off Fortress Monroe. The *Montgomery* steamed leisurely toward the Thimble Shoal light, where the *Arkansas* had been anchored with the *Florida* since May 25, when the firing ship and the target vessel left the Norfolk Navy Yard, where they had been fitting out for the test.

Thimble Shoal light is located about four miles eastward from Fort Monroe, and the *Florida* was anchored a short distance east of the lighthouse, with her prow pointing north and stern south. The *Arkansas* was anchored about 342 yards west of the *Florida*, with her stem pointing northeasterly in the direction of Cape Charles. The turret of the *Arkansas* was trained so that her guns looked over her starboard rail at an angle of about 45 degrees, and when sighted her guns looked over the turret of the *Florida* in the direction of Cape Henry,

which was barely discernible some eight or nine miles distant on the horizon, where bay and ocean met.

The *Montgomery* was, therefore, to the rear of the *Arkansas* and very close to the lighthouse. The torpedo-boat *Morris* swung at anchor a short distance northwest of the *Arkansas*, and just ahead of her were the *Mohawk*, the *Rocket*, the *Wahnetta*, and the army tug *Kinggold*. Several launches completed the little fleet of tenders and observing vessels. The *Arkansas* was in command of Commander Harry M. Donbaugh; her guns were fired by Lieutenant Walter M. Falconer. All of the officers and men of the *Florida* were on board that ship during the tests, but no one was in the turret. Commander John G. Quinnby was in command of the *Florida*.

ARRANGEMENT OF THE FLORIDA

Seven dummy men, built of wood, with rockers attached to their feet, and spring instruments connected with the places where the heart and brain would be if these lay figures were human beings, were distributed at designated points on board the *Florida*. One of these lay figures stood within the turret at the breech of one of the *Florida's* 12-inch guns; two were on top of the monitor's turret; two more on the bridge; and another pair on top of the fighting mast. Extending forward from the port plate of the *Florida's* turret was a sheet steel shield of special design about six feet long, built vertically and bending toward the port side, with a horizontal plane at the top. The plating shielded the port gun from damage, that rifle being a new one, while the starboard gun, an older one, would have to be sent to the Washington yard for renovation. The older gun, although not shielded in any manner except as to the breech and all that portion of the rifle which was within the turret, came out of the test with but two injuries,—a few scratches on the muzzle and an injury to its sight within the turret.

A RANGE SHOT

The first of the experimental shots was fired at 9.10 o'clock. It was a preliminary 12-inch, blind, sand-loaded projectile, and was simply intended to insure the accuracy of the range. It was fired at a rectangular canvas target, measuring about 3 by 8 feet, and attached to vertical framework erected upon the top of the *Florida's* turret. At the time this shot was directed the turret of the target ship pointed forward so that its port side faced the *Arkansas*. The shot was a perfect hit; it passed

through the lower half of the canvas and landed in the water on the other side of the *Florida*.

This preliminary finished, the canvas target was removed, the two dummy men were placed on top of the turret, which was swung around so that its guns were levelled at the turret of the *Arkansas*. A white cross was then painted on the port plate of the *Florida's* turret, about half-way between the port hole of the starboard gun and the starboard edge of the turret, and slightly above the horizontal axial line of the gun-port. Lieutenant Falconer of the *Arkansas* was then directed to train the 12-inch gun, which had been loaded with a shell containing the new high explosive with which the army has been experimenting, at the lower end of the vertical line of the white painted cross.

A THEORETICAL SHOT

At 10.45 o'clock this shot was fired at the *Florida's* turret. Before the firing, the observers aboard the *Arkansas* were ordered to go below the protective deck of that ship. Rear Admiral Mason and Chief Constructor Capps entered the conning tower of the vessel. These precautions were taken for two reasons,—first, to shelter observers on the firing ship from flying fragments of the shell in the event of its detonation at the short range of 342 yards, and, secondly, for the purpose of making sure that none of the newspaper observers should witness the exact occurrence at the moment of impact. The officers and crew of the *Florida* also were below the protective deck of that vessel.

The exact range of this shot was 342 yards, the *Arkansas* shooting across her starboard bow. By mathematical calculation the powder charge had been so reduced as to give the shot the same velocity in foot seconds that such a shot would have if fired with a full charge of powder at a ship about 6,000 or 7,000 yards distant. The velocity of the shot at the moment of impact was carefully withheld. It was given out that it was equivalent to a shot fired with a full charge at a range of about 5,000 yards. It is understood that the velocity at the moment of impact corresponded closely to about 1,800 feet per second at the surface of the *Florida's* turret, and this is declared to have been equivalent to a range of nearer 7,000 or 6,000 yards than 5,000 yards, if a full charge of powder had been used.

At a given whistle, the officers and men of the *Florida* went below her protective deck, while Lieutenant Joseph K. Taussig, who was in charge of the *Florida's* turret, entered the handling room immediately beneath the tur-

ret. The shot struck slightly below the center of the white cross on the port plate of the turret and within about forty-two inches of the right gun. Instead of detonating, the shell was shattered into fragments. All but one of the press dispatches declared that the shell had "exploded," meaning by that that it had "detonated"; but the correspondents were not familiar enough with naval gunnery to discern the difference between a "detonation" and the mere "shattering" of a shell into fragments through the impact with the 11-inch armor of the *Florida's* turret.

Immediately after the impact, glasses were trained upon the turret from all of the ships and outward results were hastily obtained. Observers were sent to the *Florida*, in the *Mohawk* and other boats, but before their arrival members of the eager crew of the *Florida* who had come up from below the protective deck signalled that there was no penetration. The real effect of the shot was not, however, learned until Rear Admiral Mason and Chief Constructor Capps, hastening from the coming tower of the *Arkansas*, went over for a scientific inspection of the turret, accompanied by Generals Murray and Crozier.

THE RESULT

They found that while the shot had not penetrated, it had caused severe damage to the starboard portion of the port plate. In spending its force, the 12-inch shell had made a deep black hole at the point of impact and had badly cracked the plate. Extending horizontally across the point of impact from the edge of the plate to the gun port, was a great fissure. That portion of the plate below this fissure had been jammed inward, the greatest depression being nearly 18 inches; and in the shunting of the plate toward the gun, the depressed edge slid under that portion of the plate above the point of contact. From this depression the plate slanted upward toward another fissure, a little lower down and extending from another portion of the gun port to another point on the edge of the plate.

On account of the bevelled edge of the plate, it could not shift to the starboard edge of the turret when struck, but moved toward the starboard gun until stopped by that weapon, leaving a gap along the line where the bevel-join had been made. The side plate of the starboard face of the turret was also badly buckled; but, in spite of this damage, which was all external, the interior of the turret was virtually intact. The guns were put through the prescribed test under the direction of Rear Admiral

Mason and Chief Constructor Capps. The training gear was tested and responded perfectly. The ammunition hoist and elevating gear were examined and showed no defect. The turret of the *Florida* was then revolved and operated without a hitch.

After the inspection of the interior of the turret, an examination of the springing of its side seams, the bent water ledge, and the two bolts which had been jarred off on the inside of the turret, those in charge of the test directed that the turret be covered with a canvas cloth to prevent photographs of the broken plate being taken.

Commander Quinby and his officers and crew, who were below the protective deck of the *Florida* at the time of the impact, said they felt practically no shock; that it was not greater than what would have been caused by the firing of their own guns.

Inside of the *Florida's* turret a canvas screen had been stretched for the purpose of ascertaining whether any fragments of the shell had entered. It is asserted that this cloth was perfect, after the examination was made. The only damage inside the turret was a broken sight on the starboard gun and the injury to the gun itself. The port gun was not injured, except for a scratch about four inches long on the right side of its muzzle, at a point where it projected beyond the gun shield. This scratch was caused by a flying fragment of shell, and amounted to nothing. The manikin at the breech of the gun was intact, and observation of the registering springs, or pressure ganges, led to the belief that a human being could have been within the turret and gone through the ordeal without harm.

The high army and navy officers remained on board the *Florida* a long while, studying the effect of the shot. After placing the canvas covering over the turret, they permitted the other officers and the newspaper correspondents to go aboard the *Florida*. The cloth was lifted long enough for them to look at the broken plate, and some of these observers were permitted to go within the turret. After that the turret was again covered with canvas. Opinions differ among officers of the military and naval services as to the lessons derived from this portion of the experiment.

SOME OF THE DEDUCTIONS DRAWN

The general opinion is that the shot did not demonstrate that turrets like that of the *Florida* would suffer no more damage than it did from a high-explosive shell delivered at the calculated range at the estimated velocity. It is strongly contended, on the contrary, that if the plate

suffered the damage it did from a shell which spent all of its energy in the impact and did not detonate, that a detonating shell would undoubtedly have created an incalculable amount of havoc in the interior of the turret.

If an enemy had fired the shot at the monitor under exactly the same conditions, but with such a shell as the Japanese used in their past war, which had a record of detonating their high explosive immediately upon contact in ninety-five cases out of every one hundred, the result would probably have been vastly different.

The shot was fired at the *Florida* at a velocity representing that which would have remained in a shell fired with full force from a range of nearly 7,000 yards. It broke up on the face of the plate, but nearly penetrated it. It is argued by many experts that this shows that if the shell had been fired with a slightly greater velocity, it would have penetrated the turret and detonated inside, wrecking the entire structure. That is, if the same shell had been fired by an enemy at a range of about 5,000 yards, it would doubtless have penetrated the turret with disastrous results in the event of perfect detonation, as it would then have struck the face plate with a considerably greater velocity than that actually used in the experiment. It should also be noted that the shell struck the turret near a corner, or side, of the face plate, where the plate was supported by the roof and side plates of the turret. It is therefore probable that if the shell had struck the plate between the two turret gun openings, it would have passed into the turret itself.

RESISTING POWER OF TURRETS

This whole portion of the experiment may be considered as almost entirely inconclusive as to the real resisting power of such a turret before an enemy armed with the latest guns discharging high-explosive shells practically certain of detonation. It cannot be said, however, that the experiment did not furnish some very useful information respecting the turret portion of the test. It was pretty clearly shown, among other things, that the method of securing the front plate to the side plates of the turret with a bevel edge between them—like the corner of a picture frame—was a sufficiently stupid violation of mechanical principles. This mistake has been rectified in the turrets of the later ships, but was probably just as stupid at the time the *Florida* was built as it would have been a century ago.

Unless we are misinformed, the shot fired at the *Florida's* turret traveled practically horizontally, and struck the face plate at an angle equal to the inclination

of the face plate, which may have sloped at an angle of about 40 degrees. Lieutenant Falconer is understood to have pointed his gun point blank at the target and to have fired the shot horizontally. This cannot be officially ascertained, but is the impression of many of the observers. If so, it may have struck the plate at an angle of about 40 degrees. If the shot had been actually fired from a distance of 6,000 or 7,000 yards,—not merely with a velocity equivalent theoretically to that distance,—it would have struck the plate at an angle more nearly corresponding to 45 degrees, which would have been a better angle for penetration.

THE MILITARY MAST

The second portion of the experiment,—the firing of five shots at the experimental military mast,—gave very interesting results. This mast was specially erected on the stern of the ship. It was ninety feet high, built of steel tubes which crossed each other spirally and gave the impression of lattice work. At intervals from base to top were parallel bands of double rows of circular steel tubes, arranged within and without the spiral lattice work. These bands held the uprights of the mast together.

The mast was not constructed vertically, but slanted toward the stern of the vessel, the angle of inclination being about 12 degrees, so that a plumb line dropped from the top of the mast would have fallen outside of the outer edge of the base. Five small square targets hung upon this mast, at designated intervals between its top and base. These targets were differently marked with lines of white paint, for the guidance of the gun-pointer.

So much time had been taken up with the examination of the effect of the shot upon the turret that it was close upon 12.05 o'clock before the first shot was fired at the mast. It was a 4-inch solid shot, and the result was the severing of one of the spiral tubes near the bottom on the far side of the mast. The other four shots were fired at intervals of about ten minutes. The second shot was another 4-inch solid; it severed several tubes, about one-third of the way up the structure, then passed through the mast and dropped into the ocean.

The third shot, also 4-inch solid, passed entirely through the openings in the lattice work without striking a single tube, and landed in the ocean, without causing any injury to the mast. The fourth was a 4-inch shell, filled with explosive, and went exactly through the middle of an upper target, exploding with a yellowish smoke. This target was marked with two horizontal lines, intersected by a vertical line, and the shot hit the exact center

of the median line. The fifth and last shot fired at the mast was an unloaded 12-inch shot. Just before this was fired the *Arkansas* ran up a red danger flag, and everyone was anxious to learn what had happened. It was that the *Arkansas* had sighted a small sailboat in the offing in the line of range, and the torpedo-boat *Morris* was sent around to chase the small craft away. Shortly before 1 o'clock the shot was fired. This 12-inch unloaded shell severed five of the steel bars of the mast completely and two of them partly, on the edge of the structure, above the stern of the ship, and, passing through, dropped into the ocean.

This ended the firing. There was a call from the *Florida* for Lieutenant White and Lieutenant Commander Bradshaw, who were aboard the *Mohawk*. That tug went in close to the port side of the monitor and landed the two officers, who climbed to the top of the experimental mast, caught hold of its railings, and shook it; but the structure had withstood the test, and moved only a little.

CONSTRUCTION OF THE MAST

This mast was built of 46 steel tubes, each 2½ inches in diameter at the base, on a diameter of about 30 feet at the bottom, graduating to 10 feet at the top; at its top a platform 20 feet square was laid. The mast weighed eight tons, and this was augmented by an extra weight

of about four tons placed on the topmost platform. It is claimed that if the mast had been constructed like most military masts, out of sheet steel, shells exploding inside of the structure would have completely wrecked it. As it was, the mast, although it was hit by four of the shells and had about a dozen of its tubes severed, still stood, and the five shells went through openings in the structure.

TORPEDO TEST

The second half of the *Florida* experiments took place a week later,—on Saturday, June 13,—when the monitor was used as target for a modern torpedo which was discharged so as to strike the *Florida* about amidships below the water line. The torpedo was loaded with 230 pounds of gun cotton, and exploded with terrific force, tearing a hole about 6 feet high and 8 feet wide at the striking point and immediately in front of a *specialty constructed bulkhead*, the object of which was to offer better torpedo defense by *restricting the area of damage* caused by a torpedo blow. Water poured into the ship's wound. While the vessel heeled somewhat, she was kept afloat by means of special pumps and was able to proceed to the Norfolk Navy Yard. The test was witnessed by both Secretaries Taft and Metcalf, with many officers of both services, and is officially regarded as a success. Special bulkheads of the type used are being provided for the *Michigan* and other later types of American ships.

RECORD TARGET PRACTICE AT MAGDALENA BAY

The new armored cruiser *Maryland* won the battleship trophy in the annual spring record target practice of the American Navy at Magdalena Bay, and therefore leads the heavier ships of the service in target work. The relative merits of the various vessels was made public, during the last week in May, by Commander William S. Sims, General Inspector of Target Practice, with the approval of Secretary of the Navy Metcalf.

The results obtained in the spring work on the target ranges is extremely gratifying and shows the manner in which the American navy has improved in gunnery under the present system of record practice each spring and battle practice every fall. The present system was inaugurated in 1903, and each semi-annual experience on the

range has resulted in improvement of a marked character in the results obtained by the gun pointers.

The percentage of hits made by all classes of guns is now twice as great as it was in 1903. This represents an increase of 100 per cent in the number of hits within the space of five years. But accuracy of hitting is not the only thing in modern naval gunnery. It is regarded as vitally and essentially important not only to hit your enemy, but to strike first and to do it often. That is, the ideal is rapidity of gun-fire, combined with accuracy of blows. Not only has the American navy improved marvelously in certainty of shots, but also in rapidity, the latter also having increased 100 per cent since 1903.

The figures given out at the end of May cover the



BATTLESHIP TARGET TROPHY, WON IN 1894 BY U.S.S. MARYLAND

Won in 1904 and 1905 by the Oregon; in 1906 by the Wisconsin; in 1907 by the Illinois



Cruiser Target Trophy. Won in 1906 by U.S.S. Albany

Won in 1905 by the *Relief*; in 1908 by the *Baltimore*; in 1907 by the *Boston*

work of the annual contest of the gun-pointers in their efforts to establish qualifying records for the annual fall battle practice of the service. In the record practice during the spring, the range is one mile and the distance is accurately known. It is at this target practice that the gun-pointers demonstrate what they can do, and all above a certain percentage take the prominent places at the best guns in the annual fall battle practice, such as that held at Cape Cod Bay last October, when the range is longer, the distance is not established, the ships steam by in battle order, the range must be picked up, and each ship is allowed just so many minutes in which to hit the target at a constantly varying range, changing from 5,000 up to as high as 8,000 or 9,000 yards.

While the armored cruiser *Maryland* won the battleship trophy,—a fine bronze tablet now held by the battleship *Illinois*,—the *Illinois* stands at the head of the list of star-ships, and is second only in rank to the armored cruiser which won the highest final merit place. The *Maryland* belongs to the Pacific Fleet, other vessels of which came out first in the struggle for the other three trophies. The cruiser trophy was won by the *Albany*, one of the foreign-built vessels bought at the opening of the Spanish-American War, and now attached to the Fourth Division of the Pacific Fleet. The gunboat *Wilmingon*, built in 1894 and attached to the Second Division of the Third Squadron of the Pacific Fleet, won the gunboat trophy; while the torpedo trophy was captured by the *Perry*, of the Fourth Flotilla, which is also attached to the Pacific Fleet.

The standing of the fleets in the spring record practice was as follows:—

First: Pacific Fleet.....	60.386
Second: Atlantic Fleet.....	55.286
Third: Unassigned vessels in Atlantic Fleet.....	32.579

The highest final merit for "squadrons" was won by the armored and protected cruiser squadrons of the Pacific Fleet. The armored cruiser squadron and other vessels of the Pacific Fleet, as well as the vessels which made the voyage to the Pacific with the battleship fleet, and Lieutenant Cone's torpedo flotilla, had their record practice at Magdalena Bay under as nearly as possible identical conditions, while the vessels in Atlantic waters had their practice at Guantanamo, Cuba. The standing of the squadrons in the relative order of final merit is as follows:—

- First—Second Squadron, Pacific Fleet: *St. Louis*, *Charleston*, *Milwaukee*, *Albany*, and *Yorcktown*—64.465.
- Second—First Squadron, Pacific Fleet: *Maryland*, *Pennsylvania*, *West Virginia*, *Colorado*, *Tennessee*, and *Washington*—60.577.
- Third—First Squadron, Atlantic Fleet: *Louisiana*, *Connecticut*, *Vermont*, *Kansas*, *Virginia*, *Rhode Island*, *New Jersey*, and *Georgia*—59.169.
- Fourth—Second Squadron, Atlantic Fleet: *Minnesota*, *Missouri*, *Maine*, *Ohio*, *Illinois*, *Kentucky*, *Alabama*, and *Kearsarge*—55.801.
- Fifth—Third Squadron, Pacific Fleet: *Chattanooga*, *Galveston*, *Denver*, *Cleveland*, *Concord*, and *Wilmington*—53.959.

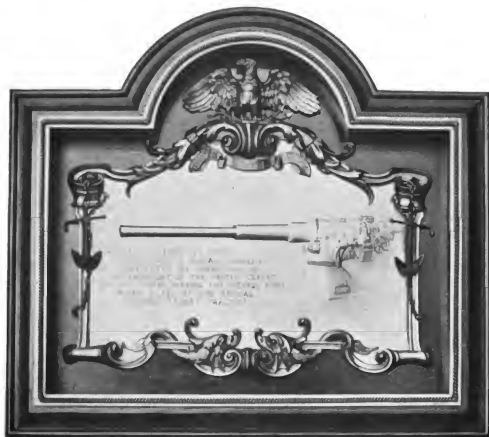
The standing of the various divisions in the relative order of final merit was as follows:—

- First—Fourth Division, Pacific Fleet: *Albany* and *Yorcktown*—70.598.
- Second—Fourth Division, Atlantic Fleet: *Illinois*, *Kentucky*, *Alabama*, and *Kearsarge*—66.133.
- Third—Third Division, Pacific Fleet: *St. Louis*, *Charleston*, and *Milwaukee*—62.420.
- Fourth—First Division, Atlantic Fleet: *Louisiana*, *Connecticut*, *Vermont*, and *Kansas*—61.860.
- Fifth—First Division, Pacific Fleet: *Maryland*, *Pennsylvania*, *West Virginia*, and *Colorado*—61.122.
- Sixth—Second Division, Third Squadron, Pacific Fleet: *Concord* and *Wilmington*—59.768.
- Seventh—Second Division, Pacific Fleet: *Tennessee* and *Washington*—59.488.
- Eighth—Second Division, Atlantic Fleet: *Virginia*, *Rhode Island*, *New Jersey*, and *Georgia*—56.477.
- Ninth—First Division, Third Squadron, Pacific Fleet: *Chattanooga*, *Galveston*, *Denver*, and *Cleveland*—51.070.
- Tenth—Third Division, Atlantic Fleet: *Minnesota*, *Missouri*, *Maine*, and *Ohio*—45.470.

The standing of the torpedo flotillas in the relative order of final merit was as follows:—

- First—Fourth Flotilla: *Perry*—68.648.
- Second—Second Flotilla: *Truxton*, *Lawrence*, *Whipple*, *Stewart*, and *Hull*—26.285.
- Third—Third Flotilla: *Tingey*, *Porter*, *Blakely*, *De Long*, and *Thornton*—25.921.

The standing of vessels singly was as follows, the star-ships being those that attained at least 85 per cent of the final merit of the trophy winners of their respective classes, all fleet and squadron commands to be accordingly reorganized to give the honor vessels the head positions in the command:—



GUNBOAT TARGET TROPHY. WON IN 1908 BY U.S.S. WILMINGTON

Won in 1904 and 1906 by the *Dolphin*; in 1905 by the *Frolic*; in 1907 by the *Princeton*

VESSELS COMPETING FOR BATTLESHIP TROPHY.

1. <i>Maryland</i> , trophy-winner.....	76.470
2. <i>Illinois</i> , star-ship.....	73.571
3. <i>Kentucky</i> , star-ship.....	71.202
4. <i>Virginia</i> , star-ship.....	70.257
5. <i>Louisiana</i> , star-ship.....	68.342
6. <i>Alabama</i> , star-ship.....	66.724
7. <i>Connecticut</i> , star-ship.....	66.029
8. <i>Tennessee</i> , star-ship.....	65.955
9. <i>Vermont</i>	64.663
10. <i>Minnesota</i>	61.723
11. <i>Pennsylvania</i>	56.890
12. <i>West Virginia</i>	54.539
13. <i>Rhode Island</i>	54.317
14. <i>Washington</i>	53.020
15. <i>Kearsarge</i>	52.043
16. <i>New Jersey</i>	52.524
17. <i>Georgia</i>	48.811

18. <i>Kansas</i>	48.406
19. <i>Missouri</i>	46.957
20. <i>Maine</i>	39.272
21. <i>Ohio</i>	33.926

VESSELS COMPETING FOR CRUISER TROPHY.

1. <i>Albany</i> , trophy-winner.....	76.924
2. <i>St. Louis</i> , star-ship.....	69.914
3. <i>Charleston</i> , star-ship.....	67.966
4. <i>Yorktown</i>	64.272
5. <i>Chattanooga</i>	62.317
6. <i>Colorado</i>	59.320
7. <i>Galveston</i>	54.576
8. <i>Concord</i>	52.048
9. <i>Mitwaukee</i>	49.380
10. <i>Denver</i>	47.450
11. <i>Cleveland</i>	39.935
12. <i>Des Moines</i>	24.564



TOMPELO BOAT TROPHY. WON IN 1907 BY U.S.S. *PERRY*

Won in 1904 and 1905 by the *Paul Jones*; in 1906 by the *Perry*; in 1907 by the *Proble*

VESSELS COMPETING FOR GUNBOAT TROPHY.

1. <i>Wilmington</i> , trophy-winner.....	67.487
2. <i>Yankton</i> , star-ship.....	59.500
3. <i>Mayflower</i>	55.337
4. <i>Paducah</i>	45.286
5. <i>Dolphin</i>	42.575
6. <i>Dubuque</i>	41.028
7. <i>Maricitta</i>	22.820
8. <i>Scorpion</i>	16.350

VESSELS COMPETING FOR THE TORPEDO TROPHY.

(Guns and torpedoes both counted.)

1. <i>Perry</i> , trophy-winner.....	68.648
2. <i>Truxton</i>	41.510
3. <i>Tingey</i>	38.070
4. <i>Porter</i>	34.216
5. <i>Lawrence</i>	32.058
6. <i>Blakely</i>	26.640
7. <i>Whipple</i>	22.666
8. <i>Stewart</i>	22.125
9. <i>De Long</i>	20.542
10. <i>Thornton</i>	10.138
11. <i>Hull</i>	10.066

(Guns only counted.)

1. <i>Perry</i>	68.648
2. <i>Preble</i>	63.753
3. <i>Truxton</i>	47.383
4. <i>Lawrence</i>	33.613
5. <i>Tingey</i>	32.642
6. <i>Stewart</i>	29.156
7. <i>Whipple</i>	25.201
8. <i>Hull</i>	19.013
9. <i>Porter</i>	15.840
10. <i>Blakely</i>	14.717
11. <i>Thornton</i>	12.204
12. <i>De Long</i>	2.642

(Torpedoes only counted.)

1. <i>Perry</i>	68.648
2. <i>Truxton</i>	41.279
3. <i>Tingey</i>	39.428
4. <i>Porter</i>	38.808
5. <i>Lawrence</i>	30.697
6. <i>Blakely</i>	29.621
7. <i>De Long</i>	25.016
8. <i>Hopkins</i>	22.065
9. <i>Whipple</i>	19.814
10. <i>Stewart</i>	15.086
11. <i>Thornton</i>	9.607
12. <i>Hull</i>	

SERVICE ITEMS

THE TENNESSEE ACCIDENT

An unfortunate accident occurred on the new armored cruiser *Tennessee*, on June 5, while she was en route, with the other vessels of the armored cruiser division, under command of Rear Admiral Uriel Sebree, from the port of Santa Barbara to San Pedro, California. It resulted in the death of seven men of the engine-room force and the serious injury of seven others. The injuries were inflicted by the bursting of a 4-inch boiler tube in No. 3 fire-room of the *Tennessee* during a full-speed trial, under full headway. The tremendous pressure of the boilers sent the scalding steam in clouds through the engine room, and broken fragments of steel were hurled with great force in all directions. The explosion occurred only a few moments after Rear Admiral Sebree, Captain Thomas B. Howard, who was in command of the vessel, and Lieutenant Commander Ashley H. Robertson, her engineer officer, had left the engine room on a tour of

inspection. Rear Admiral Sebree had just taken note of the fact that the dial recorded a steam pressure of 235 pounds, while less than fifteen minutes earlier it had endured pressure of 265 pounds. Having completed the inspection of the engine room, the Rear Admiral was continuing his rounds, when a coal passer, half-scalded, dashed past him on his way to the deck.

The *Tennessee*, flagship of the second division of the second squadron of the Pacific fleet, left Santa Barbara at 10 o'clock on the morning of June 5, with the armored cruisers *Pennsylvania*, *West Virginia*, *Colorado*, *Maryland*, *California*, and *Washington*, on the semi-annual speed trials provided by the naval regulations. The vessels had been ordered to full speed by Rear Admiral Sebree, and the *Tennessee*, after concluding a series of evolutions, started straight away at a speed of between 18 and 19 knots. This was not her maximum, as she made 22.16 knots on her original trial trip.

The boiler was of the latest type of standard tubular, of

the Babcock and Wilcox make, such as are installed in all of the newer vessels of the navy. It consists of a cluster of four-inch tubes which convey water into the main boiler; but only one tube, and that at the bottom, exploded. There are sixteen Babcock and Wilcox boilers on the *Tennessee*, each in a separate compartment, and as each is separated from the other by steel bulkheads, the explosion was not felt in the other fifteen fire rooms. The cause of the explosion is unaccounted for, and judgment should be suspended until all the essential facts are known.

A board of investigation was immediately ordered and will make a searching inquiry into the cause of the accident, under explicit instructions from Washington. It is believed in Washington that the accident may have been due to the failure to keep the tubes free from mud. It appears to be similar to that which occurred on the protected cruiser *St. Louis*, on the Pacific Coast, last February. The worst accident of the kind in the navy, that due to the explosion of a boiler on the gunboat *Bennington*, causing the death of sixty-six officers and men, occurred on the coast of California, at San Diego, July 21, 1905.

The *Tennessee* was thoroughly inspected by the Board of Inspection and Survey,—composed of Captain Richardson Clover, president; Commanders J. S. K. Reeves and Charles C. March, Naval Constructor Robert Stocker, and Lieutenant Commander Edward W. Eberle,—on August 18, 1907, having left Hampton Roads for her gun trials on the previous day. During those gun trials the joints on the gas ejector piping on three 6-inch guns were ruptured, causing an escape of air and permitting two partial flarebacks; while in one of the guns the air was not turned on the gas ejector system and a severe flareback resulted. During her four hours' trial on August 18, 1907, the average revolutions of her propellers at forced draft was 116.22, and the indicated horse-power of the main engines was 20,697, giving a corresponding speed of 20.82 knots from the standardization curve. During her eight hours' trial at maximum speed with all boilers at natural draught, on the same day, the indicated horse-power was 12,424 for the main engines, giving a corresponding speed of 18.04 knots. In its report upon those trials, the Board on Inspection and Survey said: "The working of the machinery was satisfactory. The boilers steamed freely. It was not possible to make the maximum speed, owing to the inexperience of the firemen with forced draught. Machinery, boilers, and their appurtenances in good condition." The *Tennessee*, in her

preliminary trials some months prior to the final trials of last August, had registered 22.16 knots.

The *Tennessee* was finally accepted by the Department on July 9, 1907, or more than a month before she had her final trials. The Board of Inspection made a number of recommendations for changes and alterations, mostly construction and repair work; but on account of the fact that the *Tennessee* and the *Washington* were to leave for the Pacific Coast before the rest of the Atlantic battleship fleet, it was reported to the Department as "impracticable to consider an alteration of importance at the present time."

Sight must not be lost of the fact that both the *Tennessee* and the *Washington* have been almost constantly on the go since they were commissioned in the summer of 1906. Within the past year each of these armored cruisers has covered, not including some of the port visits on the Pacific Coast, about 23,665 nautical miles, or practically the circumference of the globe, up to the time of the accident. On June 14, 1907, these two ships left Newport, R. I., as a special service squadron in charge of Rear Admiral Stockton, on their mission to the maritime celebration at Bordeaux, France. They returned to New York on August 6, 1907, having gone to Europe and returned in less than two months, and having covered 6,374 nautical miles. On August 16 the *Tennessee* left New York for Hampton Roads for her trials, which took place between the latter port and Newport. Then, for about thirty-nine days, the vessel was at the Norfolk Navy Yard undergoing repairs, and on October 12 she and the *Washington* left Hampton Roads for Trinidad, on their way to the Pacific, covering 13,739 knots on that voyage. Since their arrival at Magdalena Bay, on December 29, where they remained until February 15 in target work, the two cruisers have worked their way up the Pacific Coast to San Francisco, when, after a stop of only nine days, they went down to San Diego in March, returning to San Francisco on April 1, and leaving three days later for the Puget Sound Navy Yard. They were there from April 19 to May 1, half a month, and then started back for San Francisco, arriving May 4. Thirteen days later they started with the armored cruiser division for Santa Barbara. Up to the time of the accident, the *Tennessee* had cruised about 2,822 nautical miles up and down the California coast.

Besides this, she is scheduled to leave San Francisco on August 24 with the armored cruiser division of eight vessels for Samoan waters, visiting Honolulu going and coming, and to be back at Magdalena Bay in time for fall

target practice. The Samoan voyage will cover 9,380 nautical miles. This, added to the distance covered by the *Tennessee*, from the time she left Newport for France on June 14, 1907, up to the time of the accident, will make a total of 33,345 nautical miles—exclusive of what she does between now and August 24 next—that the *Tennessee* will have traveled from the summer of 1907 to the fall of 1908; and during that period the cruiser has spent less than three months in navy yards for overhauling and repairs.

LAUNCHING OF THE VESTAL

The new United States naval collier *Vestal*, which is more than 84 per cent completed, was launched in the presence of thirty thousand persons, at the New York Navy Yard on May 19. Miss Gladys Goodrich, daughter of Rear Admiral Caspar F. Goodrich, Commandant of the New York Navy Yard, christened the vessel, which is a notable ship of her type, being one of the fastest col-

liers in the world. She is a sister to the *Prometheus*, which is under construction and about half done at the Mare Island Navy Yard, and each is expected to have a cargo capacity of six thousand tons, and a speed of sixteen knots. The keel of the *Vestal* was laid March 27, 1907; her total cost will be \$1,400,000. Her designed displacement is 12,585 tons; length, 465 feet; beam, 60 feet; mean draft, loaded, 26 feet. Her twin-screw vertical triple-expansion engines are to develop 7,500 horsepower. Her cargo capacity is about 65 per cent greater than that of the ordinary collier, and provision has been made for a bunker capacity of 1,576 tons additional. Her armament will be four 3-inch rapid-fire guns, and she will be manned by a crew of 163 men and 13 officers. The *Vestal* will be the first collier of the United States to be manned with an enlisted crew. Although the largest boat of the kind constructed in this country, she has, despite her bulk, the long graceful lines of a passenger steamer.

THE MICHIGAN

The new first-class battleship *Michigan* was successfully launched Tuesday, May 26, at the yard of the New York Shipbuilding Company, at South Camden, New Jersey. This marks an epoch in the United States navy, since the *Michigan* is the first vessel of the all-big-gun type to take the water on this side of the Atlantic. Her displacement is 16,000 tons when two-thirds full of ammunition and stores,—the same as that of the battleships of the *Connecticut* class. The distinctive feature between these two types of vessel is to be found in the fact that the *Michigan* and her sister ship, the *South Carolina*, are each to mount eight 12-inch guns, while the *Connecticut* class and each of our other battleships in active service carries but four weapons of the larger caliber of 12 or 13 inches.

The *Michigans* are required by their contracts to make 18.50 knots speed, one-half knot more than stipulated for the *Connecticut* class. In order to provide higher speed and greater gun-power on the same displacement, it was necessary to give the ships of the *Michigan* class greater beam than their predecessors. The length between perpendiculars and the mean draft of the *Michigan* are exactly the same as those of the *Connecticut*, but the beam of the former is 80 feet 2½ inches,—3 feet 4½ inches more than that of the latter class. While the *Michigan*

does not approach the *Dreadnought* in either speed or displacement, the former has been correctly termed the first of the American *Dreadnoughts*, since the distinctive feature in both is the large number of guns all of the same caliber. The *Michigan* has the same broadside fire of eight 12-inch guns as the *Dreadnought*; but the latter may fire six of her heavy guns ahead and astern, while the *Michigan* is limited to a bow and stern fire of four guns. The *Michigan*, however, is not intended as the American reply to the *Dreadnought*, this answer being reserved for the *Delaware* and *North Dakota*, each of which has the same stern fire as the *Michigan*, but two more big guns than the *Dreadnought* on either broadside.

THE LAUNCHING

The launching of the *Michigan* was witnessed by a number of invited guests, among them Assistant Secretary and Mrs. Truman H. Newberry of the Navy Department, whose daughter, Miss Carol Barnes Newberry, christened the new 16,000-ton vessel. With them were Miss Sadie Murray, a daughter of Brigadier General Arthur Murray, chief of Artillery, U. S. Army; Mrs. James R. Garfield, wife of the Secretary of the Interior; Mrs. William Allen Smith, and Mrs. Julius Caesar Burrows, wives of the United States Senators from the State after which the

battleship was named, and Mrs. Alford W. Cooley, wife of the Assistant Attorney General.

The invited guests also included Governor Frederick M. Warner of Michigan, Lieutenant-Governor P. H. Kelley of Michigan, Governor J. Franklin Fort of New Jersey, United States Senators Smith and Burrows of Michigan, Secretary Garfield of the Interior Department, Assistant Attorney General Cooley, Chief Naval Constructor Washington Lee Capps of the Bureau of Construction and Repair; Rear Admiral William S. Cowles, chief of the Bureau of Equipment; Rear Admiral Edwin C. Pendleton, Commandant of the League Island Navy Yard; Rear Admiral John A. B. Smith, Naval Constructors John F. Hanscom, Joseph H. Linnard, David W. Taylor, Ernest F. Eggert, William G. Groesbeck, Richard H. Robinson, Stuart F. Smith, Daniel C. Nutting, Jr., and Robert Stocker, Assistant Naval Constructor Frank D. Hall, Commanders Harold P. Norton, John E. Craven, Wythe M. Parks, Robert S. Griffin, Benjamin C. Bryan, James M. Helm, Augustus F. Fechteler and Charles W. Dyson, Pay Director Richard T. M. Ball, Mayor Robert Lincoln of Detroit, Mayor C. S. Ellis of Camden, and representatives of the Senate and House Naval Committees.

The *Michigan* is the second vessel to bear that name in the United States Navy. The original *Michigan*, an iron steamer of schooner rig, 492 gross tons, was launched at Erie, Pa., December 5, 1843, and was intended for the defense of the Northwestern Lakes. She is still performing service under the name of the *Wolverine*, her title having been changed June 17, 1905, when it was decided to call the new battleship just launched the *Michigan*. The latter vessel was authorized by Act of Congress approved March 28, 1906, and the contract was placed with the New York Shipbuilding Company on July 20, 1906, at a price of \$3,585,000, to have the Department's designs of engines installed and to be completed in forty months.

PROGRESS ON THE MICHIGAN

The *Michigan*, at the time of launching, was over half done, having been 50.70 per cent completed on May 1. The keel was laid December 17, 1906. She will be ready for her trial trip in November, 1909, and will have a complement of 51 officers and 818 men. The general dimensions and features of both the *Michigan* and *South Carolina* are as follows:—

Length on load water line.....450 feet.
Length over all.....452 feet 9 inches.
Extreme breadth at load water line....80 feet 2½ inches.

Mean draft to bottom of keel at trial
displacement not to exceed.....24 feet 6 inches.
Displacement on trial, not more than...16,000 tons.
Designed full-load displacement.....17,617 tons.
Speed on trial.....18.50 knots.
Indicated horse-power.....16,500.
Bunker capacity to six inches below
beams.....2,200 tons.
Coal carried on trial.....900 tons.
Feed water carried on trial.....66 tons.

The hull is steel throughout, and the armament will be as follows:—

Main Battery—

Eight 12-inch breech-loading rifles.
Two 21-inch submerged torpedo tubes.

Secondary Battery—

Twenty-two 3-inch (14-pounder) semi-automatic rapid-fire guns.
Two 3-pounder semi-automatic guns.
Eight 1-pounder semi-automatic guns.
Two 3-inch field pieces.
Four .30-caliber machine guns.

The 12-inch guns are to be mounted in pairs, in four electrically controlled, balanced, elliptical turrets, on the center line, two forward and two aft, each with an arc of fire of about 270 degrees. The secondary battery of 3-inch, 3-pounder, and minor caliber guns enumerated above will be installed with large unobstructed arcs of fire. Arrangements are contemplated whereby the 3-inch guns on upper and superstructure decks can be quickly and conveniently dismounted, hoisted, and secured. Two torpedo tubes and accessories will be installed in the submerged torpedo room forward. Directing stations will be installed, and all necessary bench marks in connection with them.

THE ARMOR PROTECTION

The hull is to be protected by a water-line belt eight feet in width, with a maximum thickness of 12 inches, the armor extending for a length of about 326 feet amidships. Tapered casemate armor of a maximum thickness of 10 inches will extend from the forward to the after barbettes. Triangular athwartship armor 11 inches thick will be fitted between the slope of the protective deck and the extension of the flat protective deck at the after end of the belt. An athwartship armored bulkhead has been fitted, extending entirely across the ship between the upper platform and the protective deck at the forward end of the belt, 10 inches thick throughout. An athwartship casemate armored bulkhead has also been fitted between the shell

plating and barbettes and between the berth and main decks at the ends of the side casemate armor, 8 inches thick throughout.

Four barbettes will be fitted. The bow barbette extends from the protective deck to about four feet above the upper deck. The forward amidship barbette extends from the protective deck to a height about twelve feet above the upper deck. The after amidship barbette extends from the protective deck to about twelve feet above the main deck. The stern barbette extends from the protective deck to about four feet above the main deck. The conning-tower will be 12 inches thick, with a door 6 inches thick. An armored tube, 36 inches inside diameter, will extend from the base of the conning tower to the protective deck.

One torpedo-directing station will be fitted near the conning tower. Teak backing will be fitted behind all side and turret armor. Other armor will be fitted without backing. The 12-inch turrets will be armored with a 12-inch front plate, the side and rear plates to be 8 inches thick, top plate $2\frac{1}{2}$ inches thick. There is a complete protective deck fitted from bow to stern, the thickness varying from $2\frac{1}{2}$ to $7\frac{1}{2}$ inches, according to location. The cofferdams forward and abaft casemate and belt armor and the space between berth and sloping protective deck inside the cofferdam will be packed with cellulose.

THE AMMUNITION ARRANGEMENTS

The magazines and shell rooms are so arranged that about one-half the total supply of ammunition will be carried at each end of the ship. The magazine bulkheads adjacent to heated compartments, such as fire rooms, engine rooms, and dynamo rooms, are arranged with ventilated air spaces. The ammunition for the 3-inch and smaller guns will be conveyed by hoists directly from the ammunition passages to the deck on which it is required, or as near that as possible. These hoists will be driven by electric motors, and will be arranged to deliver, as required, from eight to twelve pieces per hoist per minute. There will be twelve hoists for the 3-inch, 3-pounder, and 1-pounder guns combined, and sufficient whip hoists.

The turret guns will have regular turret ammunition hoists, operated by electric power, these hoists leading directly from the handling rooms or the ammunition passages to the turrets. The handling rooms will be isolated from the turrets. The turret ammunition-hoist motors and controlling appliances will be installed under the specifications of the Bureau of Ordnance. For transporting the 12-inch and 3-inch ammunition, torpedoes, and

war heads, trolleys and tracks will be fitted in the magazines, handling rooms, passages, and shell rooms.

THE PROPELLING MACHINERY

The engines will be of vertical, twin-screw, four-cylinder, triple-expansion type, of a combined indicated horsepower of 16,500, and arranged for outward turning propellers when going ahead. The steam pressure will be 265 pounds in the high-pressure valve chest, and the stroke four feet. The cylinder diameters will be sufficient for the required indicated horse-power at about 125 revolutions per minute, and no live steam is to be used in the receivers on any full-power trial. Each engine will be located in a separate water-tight compartment.

There will be twelve water-tube boilers of the Babcock and Wilcox type, fitted with superheaters, placed in three water-tight compartments. There will be 1,050 square feet of grate, and not less than 46,750 square feet of heating surface, of which 4,675 square feet will be superheated. The steaming capacity will be such that all steam machinery on board can be run at full power with an average air pressure in the fire rooms or not more than two inches of water. There will be two smoke pipes, each one hundred feet above the base line. Sixty-six tons of fresh water will be carried on trial in the double bottom for the use of the water-tube boilers.

The vessel will be heated with steam and lighted with electricity throughout. The electric plant will be of 800 kilowatt capacity, and there will be fitted all the usual means of interior communication, such as quarters and office calls, fire alarms, voice tubes, telephones, telegraphs, indicators, general-alarm gongs, warning signals, fire-room timing apparatus, electric log, and turret-hoist indicators, all complete with bells, buzzers, gongs, and annunciators.

AUXILIARY ARRANGEMENTS

All of the main compartments of the ship below the gun deck, except the coal bunkers, will be provided with forced ventilation, there being not less than seventeen blowers, with a combined capacity of not less than one hundred thousand cubic feet per minute. Special attention has been given to spaces subject to habitually high temperatures, such as engine rooms, fire rooms, and dynamo rooms; and the ventilation system has been designed to cut the minimum number of water-tight bulkheads. All of these blowers are to be operated electrically. The evaporating plant will have a total capacity of 16,500 gallons of fresh water daily, and there will be a distilling

apparatus capable of distilling a similar amount of water every day, besides dynamo condensers and an air-compressor plant.

The *Michigan* will have a bridge both forward and aft, built according to the latest practice. On the forward bridge will be fitted a screen of brass. There will also be a brass charthouse, with a suitably located emergency cabin. There will be steel masts forward and aft, each utilized as part of the boat crane, and fitted with search-light platforms. These masts will be arranged for wireless telegraphy. There will be one signal yard on each

mast, a battle gaff on the mainmast, and a lookout platform on the foremast.

When the *Michigan* and *South Carolina* are in commission they may be readily distinguished from other vessels in the navy. They are the only ones thus far designed—aside from the *Kentucky* and *Kearsarge*—that have two military masts and two funnels along the center axial line. The *Connecticut* class have two military masts and three funnels; the *Alabama* class two military masts and two funnels, but their funnels are abreast; and the *Idaho* class one military mast and two funnels.

LESSONS OF THE PACIFIC CRUISE

One of the objects of the voyage of the Atlantic battle-ship fleet from Hampton Roads to the Golden Gate—entirely aside from its effect upon the international situation with respect to the Pacific and the training afforded both officers and men by such a journey—was the development of lessons calculated to be of value in connection with the study of actual performances of the units in the battle line.

THE OFFICIAL REPORTS

This cruise has shown, to a certain extent, what the ships themselves can or cannot do, and the performance of the vessels engaged in the voyage was closely studied by everyone, from Rear Admiral Evans, who has won just praise for the success of the voyage, through every rank and grade, to the youngest recruit. Before the departure of the fleet from Hampton Roads, the Navy Department designated officers of standing in the service to accompany the fleet as special observers. One of these specially designated students of the voyage was Naval Constructor Richard H. Robinson, who has made lengthy report to Rear Admiral Evans covering many phases of the performances of the vessels en route.

Rear Admiral Evans forwarded this report to the Department, with much interesting comment of his own and the recommendation that the "carefully" prepared report of Naval Constructor Robinson be referred to the Board on Construction, in order that the suggestions contained in it "*may be made use of in future design and construction and in any extensive overhauling of the old*

ships that may be undertaken." Naval Constructor Robinson's report was prepared at sea en route to Magdalena Bay, on March 4, 1908, and the report of Rear Admiral Evans also was prepared at sea, two days later.

THE NAVY DEPARTMENT'S ACTION

Upon their receipt in Washington, these reports were submitted to the Board of Construction, composed of Rear Admiral George A. Converse, retired, president; Chief Constructor W. L. Capps, Chief of the Bureau of Construction and Repair; Rear Admiral Newton E. Mason, Chief of the Bureau of Ordnance; Rear Admiral William S. Cowles, Chief of the Bureau of Equipment; and Captain A. F. Dixon, who was a member of the board while serving as Acting Chief of the Bureau of Steam Engineering. Under date of May 19, 1908, this board submitted its report to Secretary of the Navy Metcalf, and on the same day he transmitted all three of the reports to Senator Hale, Chairman of the Senate Committee on Naval Affairs.

Since each of these reports dovetails into the other, it is likely that a clearer understanding of them can be had by arranging them according to the subjects treated, rather than by reproducing them separately. Rear Admiral Evans' report discusses certain subjects covered by Naval Constructor Robinson's report, in the same order in which they occur in that report, and sets forth in parentheses after each heading the numbers of the paragraphs of Naval Constructor Robinson's report which touch upon the same subject.

The Board on Construction agrees with most of the suggestions made by Rear Admiral Evans and Naval Constructor Robinson, though it says that the suggestions are not applicable to ships "recently designed" and "under construction." But there is no denial of the fact that there have been defects of construction in the ships making the voyage, which represented the best types available in the navy for the journey to the Pacific at the time the sixteen battleships left the Capes of the Chesapeake for the tropics.

CHARACTER OF THE REPORTS

The Board on Construction, in its report of May 19, says that after carefully considering the suggestions of Rear Admiral Evans and Naval Constructor Robinson, it "finds itself in general agreement with the very large majority of such suggestions." Then the Board adds:—

"As a matter of fact, however, the comments of the commander-in-chief and the naval constructor attached to his staff were made upon battleships the most recent of which was designed more than six years ago, and nearly all the criticisms made by them are therefore inapplicable to battleships recently designed. The comments herein-after made by the Board on Construction relate chiefly to the most important features considered in the reports of Rear Admiral Evans and Naval Constructor Robinson."

Rear Admiral Evans explains, in the introduction to his report, that on January 6, 1908, at the suggestion of Naval Constructor Robinson, a series of questions were addressed by Rear Admiral Evans to each commanding officer and a series of questions to each head of department, relating to matters under his cognizance in the fleet. Then Rear Admiral Evans says:—

"By my direction Naval Constructor Robinson made a careful study of the replies to these queries, and, after a full consideration of them, prepared the accompanying report. The fact that it is submitted by an officer of his high professional attainments and general good judgment and openmindedness, and is based on personal observations made during his zealous and untiring investigations during a long cruise with the battleship fleet, combined with a digest of the opinions of a large number of seagoing officers, each referring to matters in his own department, should give it great weight, and I trust that the suggestions contained in it will receive the full consideration which they deserve."

The comments of Naval Constructor Robinson are, therefore, based upon observation of the behavior of the ships during the voyage, inquiry on his part as to their performances, and upon the opinions expressed by the

various officers of the fleet in response to the queries contained in Rear Admiral Evans' circular letter of January 6. The first part of the report deals with the "general character of ships and their salient features," and the rest deals with the "detail of internal arrangements and fittings of battleships of the United States fleet."

THE DESIRABILITY OF HOMOGENEITY

The importance of homogeneity between vessels is emphasized in the following comment, at the beginning of Naval Constructor Robinson's report:—

"The desirability of homogeneity between vessels operating together has been impressed upon me. Such homogeneity should include economical speed and coal capacity from strategical consideration, and turning and maneuvering qualities and arcs over which guns may be brought to bear from tactical considerations.

"That fittings and auxiliaries should be interchangeable is desirable, but not so necessary as that the ships should be similar in the above qualities.

"To what extent absolute homogeneity should be carried is a question open to argument, but I believe that units of four should be the minimum, and that in progressing from unit to unit the most careful considerations should be given to the large questions of endurance and maneuvering qualities, so that the various units may be combined into a fleet whose operation is not impeded by the weakness of a small part.

"The excessive coal consumption of the *Maine* and the small coal capacity of the *Alabama* and *Illinois* bring out these points."

The comment which Rear Admiral Evans' report makes upon this portion of the Robinson report is as follows:—

"Nothing less than actual experience with a fleet of vessels in service will adequately impress upon any person, officer or layman, the importance of this quality as a common attribute of the vessels of the fleet which are to act together. This cruise has particularly accentuated the importance of homogeneity in units so far as regards coal consumption and capacity, and steaming qualities, but few opportunities for tactical maneuvering have presented themselves, and therefore the absolute necessity for homogeneity in other qualities has not been so clearly brought out. These qualities must be possessed to the same degree by ships that are to maneuver successfully together, and of them I would particularly designate certain features which tactical maneuvers would plainly emphasize, but which, from present experience only, may be easily overlooked, and in regard to which even sister ships sometimes differ widely. All ships in a fleet can of course be assigned a standard helm angle, corresponding to a standard tactical diameter, but the variations in their times of turning, and in transfer and advance (few turns are more than eight points), is frequently sufficient to throw a per-

fect line into a very imperfect and ragged column, or vice versa. The tactical defect consists not merely in the difficulty (amounting almost to an impossibility) of satisfactorily drilling a fleet of such ships, but in the fact that in the probable maneuver of going from line into column before an engagement (the fleet would open fire as soon as this change of formation is completed), the formation may be broken to the extent of having one ship blank the fire of others. How far it is practicable to carry this homogeneity of tactical and steaming qualities must of course depend on circumstances. (See paragraph 47, on propelling machinery, in Naval Constructor Robinson's report, in this connection.) It is my duty at this time to strongly present the value of this feature and to recommend that homogeneity of tactical and steaming qualities be given to units of four vessels as a minimum, but all ships of a class should be as nearly homogeneous in these particulars as practicable. (A special report will soon be made by me on the bad effects on the fleet of the *Maine's* peculiar and inefficient steaming qualities, which effects are so destructive of fleet efficiency that I am compelled to urge her withdrawal from the fleet and the general reconstruction of her boiler plant.)

"Homogeneity in arc of fire is also important, but homogeneity in the caliber of guns, design of turrets, fittings, etc., is only important to the extent of simplifying ammunition supply, supply of spare parts, etc., to a large fleet, and is therefore of secondary importance as compared to the main question set forth above."

With the above recommendations before it, the Board on Construction makes the following comments upon the suggestions made relative to homogeneity:—

"Views similar to those submitted by Admiral Evans and Naval Constructor Robinson with respect to the necessity of homogeneity in type of battleships have long since been accepted as fundamentally correct by Navy Department officials responsible for new design work, and, so far as legislative and other conditions have permitted, homogeneity of type has been given special consideration. Indeed, with the sole exception of the *Idaho* and *Mississippi*, the designers of the Navy Department, during the past seven years, have given special attention to the desirability of homogeneity, as is fully evidenced by the fact that there are five *Virginias*, six *Connecticuts*, four *Tennesseses*, and six *Colorados*. The *South Carolina* and *Michigan* are, so far as concerns maneuvering power, speed, and other characteristics, except battery arrangement, capable of being placed in the same tactical group as the vessels of the *Connecticut* class. The conditions under which the *South Carolina* and *Michigan* were designed, the limitation imposed by Congress upon their size, and the desirability of completing a group of eight vessels of the same general maneuvering characteristics as the *Connecticut* class, have already been brought to the attention of the Department in various official communications. The conditions under which the designs of the *Delaware* and *North Dakota* were developed are too well known

to require further elaboration in this report. The two battleships authorized in this year's appropriation bill, so far as concerns maneuvering qualities, general arrangement of battery, etc., will be quite similar to the *Delaware* and *North Dakota*, so that these two battleships and the two battleships just authorized can be considered as a group of four homogeneous vessels."

FREEBOARD AND GUN-POSITION

From homogeneity the report of Naval Constructor Robinson turns to the question of freeboard and the height of gun positions, and says:—

"In battleships of considerable length and speeds, in any but the smoothest sea, some water is taken on board forward with the freeboards that exist in the vessels of this fleet. Ordinarily the amount of water is not such as to prevent the use of bow turrets under reasonable conditions. A flaring of the bow sections, omission of excrescences, such as bill boards, bow sponsons, and, where possible, increase of freeboard forward are advisable, and, if length and speed are to be increased, imperative. Bow guns mounted similarly to the forward 3-inch guns on the *Connecticut* class are useless underway at any speed in practically any sea.

"The flukes of patent anchors when carried low down contribute to this throwing of water, and should be raised, as it is understood to have been done on latest designs by making inclination of hawse pipes to horizontal much less. A low breakwater some distance abaft the bow diagonally inclined to thwartship line and having freeing ports of some size at sides would contribute to dryness.

"I have seen no weather on this trip where turret guns would be out of action, except so far as flying spray in a few cases might affect the sights. Quarter-decks as low as the *Maine* type do not appear desirable, being frequently flooded by a quartering sea of any size, though I have seen no weather on this trip to put the after turret out of commission.

"Guns mounted in broadside in positions corresponding to the 7-inch battery of the *Connecticut* are liable to be thrown out of action on the weather side at any considerable speed under trade-wind conditions, or, worse, due to water.

"If the amount of water getting through the port is not sufficient to cause serious trouble, it will, under these conditions, interfere with drill, make the service of the gun difficult by making decks slippery, and impair the use of the telescope.

"The effect on the lee guns is much less, but, due to refraction from gases of gun in firing and its effect on sighting, the lee gauge is probably the one that will be chosen and is certainly the best from a gunnery standpoint.

"With the present acceptance of the all-big-gun ship any battery likely to be on this deck in future will be for

torpedo defense only and would probably not be manned during the main action."

Then, in his report, Rear Admiral Evans takes up the above comment by Naval Constructor Robinson, and has this to say upon the subject of freeboard and gun heights:—

"Referring to the subject of freeboard, there is no question but that the intermediate-battery guns of every vessel in this fleet are too low for efficiency. When steaming at 10 knots, with an ordinary trade wind anywhere forward of the beam, it is necessary for comfort and to prevent occasional flooding of the gun deck to keep the weather guns secured, with shutters in place. Under such weather conditions it would be possible to fire the guns, but the occasional seas which would enter first one gun port, then another, would flood the deck to such an extent, combined with the roll of the ship, to run over the coamings of the hoists, flood the passages, wet the powder, and would, in short, render the fighting of the guns impracticable. Aside from this, these conditions, when action is not imminent, would necessitate keeping shutters in place, thereby preventing traipping at the guns, without which they would be of little use in battle. If under the above conditions the speed were increased to 15 knots, the guns could probably not be fired nor the shutters cleared away. Under the above weather conditions the turret guns can nearly always be fired at a 10-knot speed, but at 15 knots it is possible that some difficulty would be encountered.

"As future ships will have only turret guns in their main battery, the point loses some of its importance, but a somewhat higher turret gun forward would seem necessary to fight with full efficiency at 15 knots in a trade-wind sea, or at 10 or 12 knots in a somewhat heavier sea than that which is ordinarily encountered in the trade belt."

After considering what Rear Admiral Evans and Naval Constructor Robinson say about freeboard and gun heights, based upon their actual experience with the fleet, the Board on Construction disposes of the subject in three paragraphs, reading as follows:—

"It may be accepted as an axiom in the development of battleships that freeboard in excess of that absolutely required for seaworthiness and the proper working of the battery is not only undesirable but a definite disadvantage, as it increases the target area and raises the center of gravity, making the vessel more liable to be hit, and considerably decreasing the stability under damaged conditions. The increase of length and speed of battleships, and the fine lines forward and aft, in conjunction with the concentration of weight near the extremities of the latest battleships, has made it advisable to increase the height of freeboard forward. Even in this respect, however, Japan, which has certainly had very considerable experience of fighting under modern conditions, has, in its latest ships,

adhered to a forward freeboard of moderate height, the forward freeboard of the *Aki* and *Satsuma* being reported as practically the same as our *Connecticut* class.

"The comments with respect to the inability to fight the weather broadside guns under certain conditions of weather are fully appreciated, but it must be borne in mind that for ships now with the Atlantic Fleet the broadside battery cannot well be disposed in any other manner than the one adopted—a disposition, be it noted, which is practically identical with that of the battleships of England, Germany, and Japan of the same period of design.

"Indeed, the heights of the axes of the broadside guns of United States battleships are, as a rule, from 1 to 2 feet higher above water than corresponding guns in British battleships. The broadside batteries of United States battleships now in course of construction are purely for torpedo defense, and as all available battery space on the upper deck has been pre-empted by heavy gun turrets, any other system of mounting than that adopted would be wholly impracticable. The location of guns of the secondary battery on top of turrets was considered many years ago, and such a location has several times been indicated on the plans of battleships. So far, however, no guns have been actually so mounted, since there is very good reason to believe that they would not be available for repelling torpedo boats after any general engagement on account of injuries received in action. This matter was carefully considered in connection with the designs of the *South Carolina* and *Delaware* classes, and at that time the disadvantages of mounting guns on top of turrets were believed to be greater than the advantages."

TORPEDO DEFENSE GUNS

As to the location of torpedo-defense guns, Naval Constructor Robinson says, in his report:—

"A torpedo attack may be expected from any direction, and, if it is to be repelled while the ship is steaming at some speed under the conditions mentioned above, it would seem that some, at least, of these torpedo-defense guns should be mounted higher than the gun-deck level.

"It is essential that such torpedo-defense guns be protected by armor in order that they may not be expended in the action and may be ready when wanted. To raise the whole torpedo-defense battery and armor it properly is a difficult matter without raising the main battery, which immediately affects the stability and causes increase of beam and further complication.

"It therefore seems that part of such guns should be kept on the gun deck suitably protected, and a few might be mounted on tops of turrets or in the high and exposed positions, or, if possible, a suitable design of special quick-acting type of disappearing gun mount developed so that the torpedo-defense guns might be stowed behind armor during the main action and quickly brought to battery afterwards."

The recommendation made by Rear Admiral Evans on this subject of torpedo-defense guns is:—

"In new ships the question of the height of broadside guns is transformed into a consideration of the height of torpedo-defense guns, and the fact that in case of a torpedo attack a commanding officer is not at liberty to choose between the use of the weather or of the lee battery renders it important that at least some of these guns be placed high enough to be used efficiently in any sea in which a torpedo boat or destroyer could operate."

"In this connection the tops of the two higher turrets, suggested by Lieutenant Commander Upham, seem to be ideal positions for four of these guns. A torpedo attack would usually either precede or follow an engagement, or else would be an isolated attack unaccompanied by a general engagement, and there would therefore be little probability that these guns would be required during a regular action. In fact, in recommending this position for a portion of this battery it is expected that these guns would not be used while the turret guns are firing. When this is taken into consideration the question of ammunition supply is at once simplified, because it would be entirely practicable to pass it up by hand."

"The exceptional position thus offered aboard our new ships for four guns with very large arcs of fire, and in commanding position, available for use at all times except during a general engagement, is too valuable to be neglected."

"These guns would probably be disabled in action; in fact, the accounts of the battle of Tushima indicate that nearly every secondary battery gun on certain ships (as would be natural to expect) was so disabled. This, therefore, suggests the desirability of protecting by armor or otherwise some torpedo-defense gun expressly for use after an engagement. I therefore, in addition to recommending the utilization of the tops of turrets for a portion of this battery, approve the recommendation made by Naval Constructor Robinson that, if practicable, a certain other portion of this battery be so mounted that the guns would remain housed behind armor during action, and would be available to be quickly thrown into battery and used to repel an attack following an engagement."

ARMOR-BELT LOCATION

Concerning armor-belt location, Naval Constructor Robinson makes the following statements:—

"As to the much-vexed question of armor-belt location, the weather and sea conditions of this trip have been unusually good, but even under these conditions the bottom of the belt of the various ships has been frequently visible, due to the pitching and rolling, and it would seem that the location of the bottom of the belt was not excessively low, as an injury below the belt would be much more serious than one above it, and could be made by a shell of any caliber when the bottom of the belt is exposed."

"It is realized that the conditions of loading of the various vessels of the fleet were unusual, the single item of reserve feed water ranging from 300 tons in several

ships to as high as 800 tons in one ship; in addition to which are unusual spare parts, target-practice ammunition, etc."

"It would hardly be denied by anyone that it is desirable to have the greatest area and thickness of armor possible, and it would seem that a belt starting at the level of the bottom of the present belt, and made at the maximum width and thickness possible, at the same time assigning proper protection to the turrets and gun emplacements, is a reasonable compromise. Armor at the bow should be arranged with regard to form of wave profile, unless the fineness of bow lines and arrangement of internal subdivisions is such as to make excessive trim and loss of stability from bow damages impossible. Similar remarks apply to the stern, with the additional fact that protection for the steering gear is imperative."

Rear Admiral Evans puts his views on the armor-location question in the following language:—

"Judging from the figures contained in the several replies from commanding officers which relate to this subject, it would appear that better protection might have been afforded had these belts been originally placed between 6 inches and 1 foot higher; this on the theory that the commanding officer would admit sufficient water before an action to sink the belt to within about 18 inches above the water line, but even this is open to question, for it has been noted that even when heavily laden and in the smooth to moderate seas, which have thus far characterized this cruise, the ships frequently expose their entire belt and the bottom plating beneath it. It must be remembered that even a 5 or a 6 inch shell (of which there would be a great number) could inflict a severe and dangerous injury if it struck below the belt, while otherwise the water line, even with the belt entirely submerged, is, on account of the casemate armor, and coal, immune to all except the heaviest projectiles. The fact is that under the sea conditions in which battles may be fought a belt of 8 feet in width, if considered alone, is too narrow to afford the desired protection, wherever it may be placed; and the question becomes an academic discussion, with certain arguments on each side. It is understood that on the latest ships this question is of little import, as the citadel armor is but 1 inch less in thickness than that on the water line, and for those ships already built it is believed that if bridges are removed and all weights which will be handled when war breaks out are taken into consideration, the ship will rise the 6 or 12 inches which is believed to be the maximum that it should be desired to raise them."

"In this connection I desire to comment particularly on the disposition of armor on the bows of the ship. When a ship is steaming even at 10 knots the armor at the stem is submerged 2 or 3 feet by the bow wave, and at 15 knots to a much greater depth. There is ordinarily no armor above the water line in this part of the ship, thus rendering it vulnerable to 5 or 6 inch shells, and if these enter, the pitching and ascending would soon fill the decks forward with water, put the ship down by the

head, tend to expose her screws and rudder, and render steering erratic.

"The suggested curving the entire water-line belt up at the bows and covering both sides in the forward portion of the ship, say as far aft as frame 17, with 2 or 3 inch armor as protection against smaller caliber shells, seems pertinent and worthy of consideration.

"The importance of thorough protection of the steering gear is suggested by Naval Constructor Robinson. The necessity of thorough protection of all parts of this gear is accentuated by the fact that several ships in the Russo-Japan War were either defeated or seriously injured by having their steering gear disabled. In every "soft-bowed" ship the degree of protection to steering gear, when she is down by the head as the result of injury forward, should be carefully considered."

In its comment upon what Rear Admiral Evans and Naval Constructor Robinson have to say about the location of the armor belt, the Board on Construction declares its opinion that the armor belt should not be raised. Concerning armor-belt location and the recommendation for bow armor the Board on Construction says:—

"With fine bow lines and consequent small displacement of this portion of the vessel, the devotion of any considerable amount of weight to armor at the bows of battleships has been considered unnecessary, especially when the water-line armor is extended over so great a proportion of the length of the ship as in the case of the *South Carolina* and *Michigan* and *Delaware* and *North Dakota*. The very great extension of the heavy water-line armor on these vessels in connection with the transverse armored bulkheads and the armored deck forward of the side armor, and extensive compartmental subdivision, with cofferdams filled with cellulose, is believed to provide a very much better protection to the buoyancy and would prevent change trim of the vessel due to water-line damage in a much more efficient degree than has been possible with the arrangement previously adopted in the case of battleships whose thin side armor was continued to the bow.

"From the comments contained in the accompanying reports of Rear Admiral Evans and Naval Constructor Robinson it is obvious that in the moderate weather experienced during the passage of the fleet from Hampton Roads to Magdalena Bay there were numerous occasions upon which the lower edge of the main armor belt was exposed, and this under the unusually deep-laden condition of the vessels of the fleet, some of these vessels carrying as much as 800 tons of fresh water in their double bottoms and having on board large quantities of excess stores, ammunition, etc. Therefore the statements in these reports as to the undesirability of raising the lower edge of the belt armor, when taken in connection with the very positive statement made in the communication of Captain Ingersoll in his letter of April 16, 1908, fully confirm the Board in its opinion, already ex-

pressed, as to the desirability of making no change in the location of the lower edge of heavy water-line armor belts of our battleships, and certainly that the lower edge should not be raised. The distribution of armored protection on battleships, like so many other questions relating to battleship design, is necessarily a compromise, and the fundamental principles governing such distribution which have heretofore been observed are, in the opinion of the Board, entirely sound and should be adhered to in the future."

BRIDGES AND SUPERSTRUCTURE

There has been a strong tendency in all navies toward the elimination of superstructure aboard warships. Concerning this matter Naval Constructor Robinson says:—

"A reduction in the number and size of superstructures and bridges should be made. One bridge forward of a generous size, at about the level of conning-tower floor, with no flying bridge, is desirable, and a concentration of superstructure forward in the form of a high bow and fore-castle will tend to efficiency in many ways. The present type of superstructure is undesirable."

Rear Admiral Evans also says in this connection:—

"Except for the flagships on which an after bridge and an emergency cabin is an essential, all flying bridges and after bridges are unnecessary and are a menace in action. Under 'Conning Towers' I mention the nature of bridge which would be desirable forward, viz., the present forward bridge with portable extension on each end extending out to the side, the conning tower being used as the habitual steering position, with a wheel on top and a rail around the conning tower to afford a means of piloting the ship. The bridge should preferably have a portable grating covering, and the chart house either be subject to removal when war breaks out or located farther from the conning tower, on account of fire in action. If there were no flying bridge forward, none would be necessary aft, and the lower bridge, if made large enough to accommodate the signal staff of flag-officer, would then be adequate as the after bridge of flagships. No stronger testimony against bridge in action can be desired than the frequent allusions in accounts of recent battles to the splinters, fires, and damage caused by their presence.

"I would recommend that one ship of each class only be fitted as a flagship, the others of the class not to be so fitted. In this connection, in order that space aboard ships which are not flagships be not wasted, it is now time to decide, once for all, on a certain list of ships to be used as flagships, fit them not only in regard to bridges, but in all other respects for that duty, and remove bridges and reallocate space on the others. This would greatly increase the efficiency of the fleet, all of which now carry much superfluous weight and much unused space owing to their nearly all being fitted with flag-officers' accommodations."

The Board on Construction says it heartily favors the removal of top-hamper; that the new American *Dreadnoughts* eliminate bridges, but that the officers, rather than the designers, are responsible for these defects in ships with the fleet. What the Board on Construction says on this subject is couched in the following language:—

"The Board heartily concurs in the suggestion with respect to the elimination of bridges and other top-hamper unnecessary for the handling of the ship in action and under ordinary conditions of service, and the designs of the *Delaware* and *North Dakota*, whose principal characteristics were determined upon more than two years ago, have fully embodied this principle. As a matter of fact, the desire for additional bridges and top-hamper has come from officers of the fleet rather than from designers, and it is only recently that officers of the fleet appear to have fully realized the benefits which would result from eliminating all bridges, deck erections, and unnecessary weights of every description."

NEW CONNING TOWER

Naval Constructor Robinson recommends a new conning tower, which meets with the approval of Rear Admiral Evans, over and above any recommended by any commanding officer with the fleet. Naval Constructor Robinson's recommendation follows:—

"The conning tower should have the fundamental requisite of adequate protection and size and unobstructed view, and the dimensions should be decided on with these features in view. Many of the present towers have obstructions to view in the form of supports for structures above the tower, boats, stacks, etc., many of which could be removed with removal of bridge above. Access from the bottom is necessary, but the door should be retained for use under ordinary circumstances if we are to do what the consensus of opinion now demands, namely, handle the ship from a bridge on the same level, by using the wheel, etc., in the conning tower.

"This tower should be of a size sufficient to accommodate the captain, navigator, and three or four other men stationed at the wheel, instruments, and voice tubes. For a flagship the question of protection to the admiral and his staff is also involved. This brings out the fact that decision should be made at time of design as to whether the ship is to be used as a flagship or not. It is, ordinarily, reasonably simple to make some sort of living provisions for the admiral and his staff, though even that results in a makeshift if not originally provided; but the question of battle station is another matter. It does not appear desirable to make all battleships flagships, as has been the practice in the past, but certain ones will naturally be required to be so fitted.

"It seems that for ships so selected to serve as flagships a special sized conning tower to accommodate the admiral

and three of his staff, in addition to the ship's people, would be more efficient and lighter than a separate signal station at the after end of the ship."

"The type of tower at present fitted seems well suited, though the portholes should be made larger and the size and surroundings of towers determined by the general considerations mentioned."

As to this recommendation, Rear Admiral Evans suggests its adoption, saying:—

"I am of the opinion that neither the present conning tower nor, in toto, that recommended by any commanding officer in the fleet is entirely adequate, though a number of recommendations embody many features of what I consider the most efficient tower, and the type suggested by Mr. Robinson meets my approval in all essential particulars.

"It is my opinion that this very important battle station should be large enough to permit of its habitual use for steering the ship at all times, as is the case in certain foreign navies; that it should be elliptical in shape, extending athwartships far enough to permit a clear view directly astern; and that, while for piloting a wheel should be provided on top, the conning tower should be the only steering station protected from the weather. It should thus become, as it should be, the customary place from which the ship is maneuvered, except when entering a harbor or going alongside of a dock. This change would at once do away with the flying bridge and its incidental hamper. On ships similar to the *Connecticut* a portable extension to the lower bridge should be fitted, extending out to the side, which would be unrigged at "clear ship." The conning tower should be directly over the central station and connected to it by a thick armored tube at least 3 feet in internal diameter in the clear, in order to permit a man to pass through it. In the central station all such gear as wheel, compass, helm indicator, etc., should be duplicated, while the conning tower would require all gear necessary to the habitual handling of the ship. The coming tower should have an opening in the after side which can be closed with an armored door, otherwise the heavy plate formerly fitted is necessary, and this is undesirable both on account of its weight and the less protection it affords.

"I invite attention to the frequent casualties to personnel in conning towers during the Russo-Japanese War, and therefore cannot agree with those officers who state that no top to the tower is necessary. I consider a top essential both as to a protection against gun fire, fragments of shell, etc., and against falling masts, etc. The slits in the tower should be beveled out on the inside to give a greater angle of vision through the same-sized orifice, and they should be somewhat larger than at present, but not larger than necessary to an unobstructed view, and not so large as to weaken the security of the top of the tower in case it should be hit. Stanchions supporting the top would not give this strength, and are a menace. It is further suggested that the slit be a little above the head of the average man and a runway provided around

inside so that only those who must peep out would be exposed to splinters. For ordinary conditions a raised platform would be used by the helmsman, and if necessary this could be used in battle.

"A conning tower of this nature would be of real service. It would also be large enough for the flag-officer (at present no armored station is provided for him, although in a modern engagement such protection is of vital importance). Aside from the question of saving this weight by combining the captain's station with the one required for the flag-officer, that officer should, in battle, be near the captain of the flagship to facilitate transmission of his orders to the vessel. The estimate of three additional people to accompany the flag-officer is thought to be an adequate provision.

"It would seem to be a wise further precaution to surround this tower at a distance of some 6 feet by a 1-inch plate to act as an exploder of shell which hit it. This space could be utilized in peace as a locker. It is also thought that a plenum ventilation connection from below could be fitted so that in event of fire the smoke could be kept out without closing the portholes.

"No apparatus should be in actual contact with the walls of the conning tower. Woodwork, except of a temporary character, should not be placed near the conning tower, on account of the danger of fire in action, this danger being mainly the obscuring of vision by smoke, or the driving away of personnel by smoke and heat, and not necessarily of the destruction of gear."

The Board on Construction says this about the conning tower recommendations:—

"In the *Delaware* and *North Dakota* provision has already been made for handling the ship from the conning tower, and the other suggestions contained in the reports with respect to the fittings of conning tower have already received and will continue to receive the most careful consideration. For many years past the Board on Construction and the bureaus concerned have recommended that the number of flagships be reduced, and in view of the large number of flagships already existing no battleships designed during the past four years have been fitted as flagships. The battleships covered by the current appropriation bill will, however, be designed as flagships."

TORPEDO DIRECTING STATIONS

The report of Naval Constructor Robinson says respecting torpedo directing stations:—

"Any place reasonably high up and suitably protected forward and aft, having a clear and unobstructed view over as great a part of the horizon as possible, will serve well as a torpedo-directing station.

"The present type on front of conning tower seems well for forward station, and an armored tube in center line aft, about where present signal tower is placed, will serve well aft if the view is clear. Such an after tower is not

necessary if after tubes are not fitted. The armor of this station should be thicker than is now the case."

Rear Admiral Evans reported that the location thus suggested for these stations seemed desirable, but that "their only fault appears to be their protection." He added:—

"In view of the fact that torpedoes will not be used until ships are at comparatively short ranges, the thickness of the armor must be materially increased over that at present in use, as otherwise the stations would probably be shot away before the time came to use them."

THE STORAGE OF SHELL

Naval Constructor Robinson expressed the belief that "we have in the past made a wrong assumption that all shell require closed rooms for stowage," and then said, in his report:—

"Provision for storage of intermediate and other shell in passages, at base of hoists, in rear of guns, etc., will simplify the problem of ammunition stowage and supply and give more space for powder. This does not apply to fixed ammunition or to high explosive sensitive fuse shell, which should have separate storage."

Rear Admiral Evans concurred "in the belief that special rooms for the stowage of the ordinary types of shell are unnecessary."

PROBLEMS OF COAL AND COLLIERIES

Naval Constructor Robinson says that coal capacity "should be sufficient to give a radius of action at economical speed of 10 or 12 knots of at least 6,000 miles," and then says, on this important subject:—

"The problem of coal is one that has confronted the fleet particularly on this trip. The principal general difficulties experienced are inaccessibility of bunker chutes (inherent in ships with side turrets and superstructures), interference of deck fittings with thwartship transportation, which may be removed, and inconvenient location of chutes for delivery to bunkers, which should be guarded against in the future. Chutes should be arranged to deliver in middle of bunkers instead of at sides or corners. Some comments on the details of coaling booms and fittings are made under class B.

"The colliers used on this trip were in most cases ordinary merchant colliers, and are not altogether suited for naval purposes in that when they come alongside their hatches do not fall abreast the battleship where the bunker chutes and coaling arrangements are located. In all battleships the bunkers are now and probably will continue to be some distance from bow and stern. This, then, implies that the collier's hatches should be in the

middle of her length, the machinery being in the stern and the living spaces, etc., in the bow.

"It is not believed that a speed of more than 12 to 14 knots is necessary for the majority of colliers to serve the fleet. The type of masts, booms, and winches on these colliers will serve.

"The sides of the collier's hatches should be smooth and free from anything to catch or tear the bags.

"Every endeavor should be made to procure machinery, both main and auxiliary, of greater coal economy, and to install in a manner best suited to economical working."

The report of Rear Admiral Evans takes up these subjects as follows:—

"With reference to the question of coaling, without entering into details relating to any individual ship, I desire to invite attention to the tactical importance of rapid coaling, whether from a lighter or from a collier. This subject is of such importance as to merit the most careful consideration in every feature, from bagging the coal to its final trimming in the bunkers, and extends even to designing the colliers with a view to their 'fitting' the average battleship, so that the greatest number of men and hoists may work at the same time. The question of landing coal bags on the gun deck, the men's living quarters, and messing apartment is one of importance, in that if the use of it in coaling can be avoided it vastly increases their comfort, but this is, nevertheless, subsidiary to the question of getting the bunkers trimmed quickly.

"The question of a ship's ability to coal after an engagement also deserves the most careful consideration. A method of accomplishing this is referred to by Naval Constructor Robinson and was suggested by Lieutenant Commander Bristol, and without entering into its merits I desire to accentuate the importance of such a provision, for it is one on which the chase and final capture of an enemy or even the immediate further taking part in the operations at hand might depend. It therefore merits thought and study.

"Referring to the question of bunker capacity, I agree with Naval Constructor Robinson that a modern battleship should have an actual steaming radius at economical speed of 6,000 miles, allowing for make-up feed and for a small margin of coal to be left on arrival in port. In this connection it may be remarked that the variable performances of the ships of this fleet would indicate that this is as much a question of economy in the design of the engines and boilers as is the actual capacity of the bunkers. Results thus far, for example, show that the *Connecticut* steams about 2.8 miles per ton, while vessels of considerably less displacement cannot exceed from 2.2 to 2.3.

"Referring to economical speed itself, that is in itself an important tactical feature. If without material sacrifice of other qualities an economical speed of as much as 12 knots could be obtained, it would greatly facilitate the movements of a fleet when making long passages which demand the employment of economical speeds. Experi-

ments during this trip show that the economical speed of this fleet is about 8 knots (excluding the *Maine*, which has no economical speed and burns over 30 tons of coal a day in port), and I doubt if even the *Connecticut* class would prove their most economical speed to be much above that, although they have a large radius at 10 knots.

"In connection with the subject of colliers, I respectfully call attention to a report made to me by the present Chief of Staff, forwarded with my approval under my indorsement of March 5, 1908, which report meets my own views. I believed that the 14 knots speed for such vessels, suggested in paragraph 32 of Naval Constructor Robinson's report, cannot be attained without sacrificing more important features in design. Of course the higher speed the better, as is the case in any type of ship, but speed should not be attained by sacrificing the ability to discharge coal into a battleship expeditiously. Although this is primarily a subject for the consideration of ship designers, I believe 12 knots to be about the highest practicable speed for the type of collier that we must have. From our experience on this trip I am convinced that it will take nearly twice as long to coal the *Connecticut*, for instance, from the *Vestal* and *Prometheus* as it should, and as it would from a ship of less length and with her hatches properly arranged. Those two colliers are about the same length as the *Connecticut*, and as arranged it will be possible for the latter to coal from only one end at a time. This defect is the result of an attempt to give these two colliers a high speed, and, in my opinion, it is vital."

The Board on Construction comments as follows on the question of coal capacity:—

"Referring to the coal capacity of vessels of the fleet, it is unnecessary in this connection to outline the conditions under which the coal capacities of the various vessels now attached to the fleet were determined upon. Battleships now under construction, and those designed during recent years, have sufficient coal capacity to insure the radius of action noted in the reports as desirable. In this connection it is not unworthy of note that, of those battleships now attached to the fleet, the *Alabama* class, whose design was passed upon by a special board, has the smallest coal capacity."

DOORS IN ENGINE ROOM BULKHEADS

Naval Constructor Robinson then takes up the question of doors in engine and fire room bulkheads, saying:—

"It is the generally expressed sentiment of the engineer officers of the fleet that through access within machinery spaces by doors in bulkheads is essential to proper operation of the machinery. It is unquestionably easier, but equally unquestionably is the fact that it is more dangerous in laying open to possible bilging by submarine mine or torpedo boat the whole of the machinery space. Foreign services have adopted the idea of no doors in the thwartship bulkheads in machinery spaces and find it pos-

sible to operate their machinery, and it is believed that doors in thwartship bulkheads should be omitted, but that doors in center-line bulkheads when such are fitted are not objectionable."

On this topic Rear Admiral Evans says:—

"The omission of these doors is generally opposed by the engineer officers of the fleet. Nevertheless it would undoubtedly add to the safety of the ship, and I concur in Naval Constructor Robinson's belief that the engineer's force would soon accommodate themselves to the new conditions were the doors omitted. Their omission in future designs from all warship bulkheads in the machinery spaces is therefore recommended."

The comment of the Board on Construction upon the same subject is:—

"With respect to the omission of doors below the protective deck in main transverse water-tight bulkheads, the Board is of the opinion that the United States Navy has taken the lead in such matters, the designs of battleships of four years ago embodying this principle, which is now being generally adopted, so far as the Board is aware, by foreign navies. It undoubtedly introduces an element of inconvenience in visiting the various compartments of the vessel, but has very great advantages in preserving the integrity of the vessel's water-tight subdivision."

FIRE CONTROL MASTS AND SEARCHLIGHTS

The next portion of Naval Constructor Robinson's report deals with fire-control provisions, and says:—

"The present type of masts is for modern purposes entirely incorrect. It involves an excessive weight for the purpose with inadequate return. The present spotter's platform is supported by a wooden pole which can be carried away by a single shot, direct or ricochet. The wooden pole should be replaced by lattice masts combining the function of supports for range-finder's and spotter's platforms, and searchlights and signal yards, with a pole extension for wireless aerial."

Rear Admiral Evans touches the same subject as follows:—

"These present masts, not having been designed for this purpose, are not well adapted to fire control; aside from the excessive vibration, which may be a necessary evil, one shot, either direct or ricochet, would bring them down. A cage-work mast especially constructed to resist being cut down, and, so far as possible, to resist vibration, would probably be satisfactory."

"The cutting of the communications from the fire-control station by a fragment of a shell in the recent English experiments with the *Hero* suggests the advisability of running such communications through a small armored tube extending from the spotter's station down to armor.

This should be heavy enough to protect the wires, etc., from fragments and splinters, even though it might not be practicable to make it a protection against direct impact."

"The searchlights aboard the ships of this fleet are not suitably located. A searchlight on a bridge, or so located elsewhere that the rays strike any part of the ship, is of little value. It is believed that, so far as practicable, they should be in elevated positions and on the center line of the ship. Further study and experiment with this subject is an absolute essential."

COMMENT ON TURRETS

The turret question is always important. Concerning this feature of battleship construction, Naval Constructor Robinson says:—

"The features of the present turret open to the most improvement are (a) the sighting hood, (b) the turning gear speed, (c) the jumping off of turret as guns fire, (d) the ammunition hoist. (a) has been overcome by trunnion sights on *South Carolina* and *Michigan* turrets, which sights are strongly recommended. (b) has been solved with reasonable satisfaction on two ships of the fleet, the *Maine*, with the rotary compensator electric system, and the *Illinois*, with the Williams hydraulic speed gear controlling a constant-speed electric motor. Either of these will, so far as present experience goes, give suitable results. (c) is a matter that should receive careful consideration, as some of the present turrets jump the sights entirely off the target in firing. (d) The turret ammunition hoist of the present type necessarily involves an opening of some size for the passage of the hoist rope. Either the pneumatic hoist under construction for test or the two-stage hoist seem to present reasonable solutions of this question."

"In addition to the above, I believe that the turret should be kept under air pressure to act as a gas-expelling device, and the port opening closed by a suitable flexible cover serving as a means of excluding water as well as retaining the air."

"Provision should be made for hoisting ammunition by hand in addition to the hand-turning and hand-elevating gears now fitted."

"The tops of turrets and the arrangements of gun mounts, etc., should be so made that they may be easily removed and new guns installed quickly as may be necessary in time of war."

Then comes the comment of Rear Admiral Evans upon turrets, as follows:—

"The turret-turning gear as mounted aboard the *Maine* is believed to be the best electric gear yet installed, and even that is considered less satisfactory than the Williams-Jamney gear as installed aboard the *Illinois*, so far as experience of one year with the latter indicates. The present turrets 'kick off' during firing, in some ships to an

annoying extent, sufficient in fact to materially decrease efficiency; and in some ships this increases materially during the short string of shots allowed on target practice. This "kicking off" has been minimized by rusting the disks and setting up as hard as possible, in some cases to the extent of putting a wrench on the nuts and training the turrets against it. While these expedients in some cases practically remove the difficulty, they are accompanied by the danger of disabling the turret, and are at best a makeshift to circumvent a difficulty which should, if possible, be corrected in the design.

"Unless the compressed-air system of loading turret guns proves to be successful, the two-stage hoist is believed to be the best, both regarding safety and rapidity, which now offers.

"The question of placing turrets under air pressure to assist in expelling gases is heartily approved.

"I again invite attention to the importance of fitting adequate means for hoisting turret ammunition by hand. The turret guns can be trained, elevated, and loaded by hand, but burning out a hoist motor now puts a turret gun out of commission."

As to turrets, the report of the Board on Construction adds:—

"With respect to the comments concerning turrets and turret fittings, it may be noted that sighting hoods have been omitted from the turrets of battleships designed during the past four years. Provision has already been made to supply for the turrets of battleships now under construction turning gear of efficiency equal to that referred to as having been installed on the *Maine* and *Illinois*. Steps have also been taken to supply similar gear to vessels of the fleet whenever such vessels are available for this installation. Provision has also been made in the turrets of vessels now under construction to obviate the 'jumping off' criticised in the accompanying reports. For the turrets of vessels now under construction provision has been made to meet all reasonable requirements concerning ammunition hoists, and the question of making changes in the ammunition hoists of vessels of the fleet has also been fully considered by the bureaus having cognizance of this matter. Provision has also been made in the turrets of vessels now under construction to supplement the gas-expelling device by air pressure in the turrets themselves. Hand ammunition hoists have also been provided for the turrets of vessels under construction. Consideration has been given to fitting the tops of turrets so that they can be readily removed when necessity therefor arises."

SMOKESTACKS AND FUNNELS

Dealing with smokestacks, Naval Constructor Robinson points out that—

"In the point of view of target and of interference with fire control these stacks are too high, and it is believed they should be reduced in height to the greatest extent possible commensurate with suitable draft."

Rear Admiral Evans concurs fully in Naval Constructor Robinson's "recommendation as to shortening funnels."

TORPEDO DEFENSE

Naval Constructor Robinson says, in his report, he is "impressed with the fact of the apparent helplessness of the fleet against a concentrated and energetic night attack by torpedo boats." Then he says:—

"This subject was dealt with recently by a special board of which I had the honor to be a member.

"The general conclusions of that board were that more destroyers were needed, nets should be fitted, searchlights and torpedo defense batteries rearranged, and, if experiments which were recommended indicated the necessity, internal protection as part of the hull structure.

"I see no reason to modify the views expressed in the report of that board, and I respectfully invite attention to that report as embodying what in my opinion is necessary in that respect."

Rear Admiral Evans takes up this subject, as follows:—

"The torpedo defense of all ships in our service is inadequate. This matter has recently been made the subject of an exhaustive report by the board to which Naval Constructor Robinson refers, but I have not seen that report, and therefore cannot pass judgment upon his references made herein to its contents. Except for the suggestions already made relative to the best location of certain guns of the torpedo-defense battery and for the statement that the searchlights are at present not effectively located, I refrain from further remark."

THE TURBINE AND TACTICS

An important recommendation is made respecting the relation of propelling machinery, especially turbines, to tactical maneuvers. In six lines the report of Naval Constructor Robinson says on this subject:—

"The necessity for wide radius of action for strategic purposes and for fine control for station keeping in fleet tactical maneuvers require careful consideration in determining the type of propelling machinery, and a turbine installation which sacrificed these two fundamentally essential elements is believed inferior to the reciprocating machinery."

Concerning the same subject, Rear Admiral Evans says:—

"While believing that the adoption of the turbine machinery must soon come, I approve Naval Constructor Robinson's remarks as to the care which must be taken in adopting it not to sacrifice tactical and maneuvering qualities that are essential to the proper handling of ships, not only as a single vessel, but as a unit in a fleet."

THE MISTAKE OF INTURNING SCREWS

Another important paragraph in Naval Constructor Robinson's report is the one which says that "from observation of the length of time required in turning and maneuvering, particularly from an anchorage, I think there can be no doubt as to the superiority of out-turning screws." On this subject Rear Admiral Evans says in his report:—

"No words that can here be recorded can add to my already often expressed opinion as to the enormity of the error committed when ships were built with inturning screws."

OTHER CONSIDERATIONS

Thus far we have dealt with only that portion of Naval Constructor Robinson's report and the comments of Rear Admiral Evans respecting the general character of the ships of the Atlantic battleship fleet and their salient features. We have simply rearranged what these officers and the Board on Construction had to suggest in their reports, and have omitted nothing except the comments of the Rear Admiral and the Naval Constructor on details of internal arrangement, which will be presented next month. We have interspersed, at the proper points, the comment made by the Board on Construction, and now give the balance of that Board's comment, which is as follows:—

"Experiments are now in progress to determine the efficiency of elevated towers for fire-control stations; also as to the best arrangement of bulkheads for giving efficient protection to the ship against torpedo attack.

"With respect to the standardization of machinery, the placing of windlass engine, winches, and other auxiliary machinery behind armor, etc., the Board considers it only necessary to invite attention to the fact that a large part of the apparatus connected with such engines must necessarily be exposed, and that, while the placing of the actuating machinery behind armor would probably be desirable, it is in many respects impracticable.

"With respect to the comments on ventilation, piping systems, interconnection of salt and fresh water systems, main and secondary drains, scuppers, etc., the Board begs to note that all these criticisms are inapplicable to recent designs, since in these designs the defects commented upon in the reports have been corrected.

"In concluding its brief comments upon the reports of Admiral Evans and Naval Constructor Robinson the Board desires to invite particular attention to the fact that some of the vessels of the present Atlantic Fleet were designed more than twelve years ago, and those of most recent design, viz., the *Connecticut* class, were designed about six years ago. It is therefore entirely obvious that many of the characteristics of battleships now composing

the Atlantic Fleet, as well as their fittings and appliances, cannot be expected to conform to the latest standard with respect to such matters, although the Board is most decidedly of the opinion that they are fully equal, and in some respects superior, to battleships of corresponding dates of design in other navies. It is also obvious that without an unwarranted expenditure of money and a serious interference with fleet drills, etc., by reason of the withdrawal of ships for long periods, it is quite impracticable to bring the older vessels of the fleet up to date in all their important features and fittings. So far, however, as may be practicable changes are made from time to time to improve the military efficiency of all ships in commission, and when vessels of the fleet are laid up for general overhauling such extensive military and other changes are made as may appear to be warranted by the conditions then existing.

"In fact, naval material is subject to frequent change in character and quality, and in order that the Department's responsible designers may incorporate in new designs such changes and alterations in existing types of battleships as actual experience in service may have demonstrated to be necessary, careful record is kept of all such desirable alterations and additions for subsequent use in connection with new design work. The opinions of those who have had actual experience in command of battleships or who have served in other less responsible capacities are also given full consideration. In the last analysis, however, those directly responsible for the design of vessels must use their best judgment, based upon practical experience with the vessels of our own navy, as well as the developments of naval design in foreign services. In so doing the experience of the past indicates clearly that compromises must be made and that the accepted design can never represent the ideal development of any one feature without injuriously affecting the development of other and equally important features. For this reason any finally accepted design, while expressing the unanimous opinion of those directly responsible, and who have given the matter the greatest consideration, can never be expected to meet the unqualified approval of all those who may have given the general subject of ship design casual or even specific attention.

"Finally, it seems well to point out that on account of the method of making appropriation for battleships in vogue during the earlier part of the twelve-year period covered by the designs of the vessels now composing the Atlantic Battleship Fleet five essentially dissimilar designs of battleships have been evolved, this being an almost necessary consequence of a procedure which does not contemplate a continuous naval programme.

"The Board on Construction is very much of the opinion that battleships should be built in 'classes,' with not less than four of practically the same type in each class. This opinion has been held by the various members of the Board for many years, and it is hoped that in all future programmes of battleships for the United States Navy the principle of building in groups of not less than four similar vessels of a type will be adhered to."

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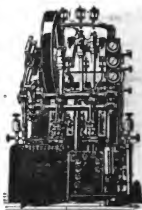
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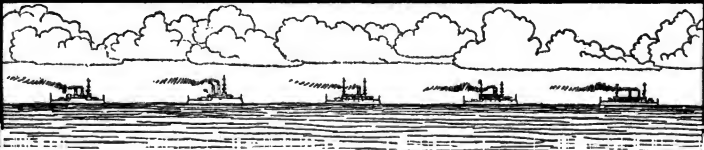
AMERICAN NAVAL NOTES

FOREIGN NAVAL CORRESPONDENCE:

NIGHT MANEUVERS

THE GERMAN FLEET

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No. 6

NOTE AND COMMENT

With American naval interests dominant for the moment in the Pacific Ocean, attention is now being focused upon the establishment of the proposed new naval station at Pearl Harbor, in the Hawaiian Islands. Although the United States has been in possession of the "Key to the Pacific" for a decade, and the necessity of strongly fortifying the principal island of the Hawaiian group has been plainly apparent, Congress failed to act until the Japanese "scare" once again brought home last winter the defenseless position of our outpost in the mid-Pacific. It was then that the Secretary of the Navy was given legislative authority and direction for the establishment of a strong naval base at Pearl Harbor, fully equipped with all of the necessary machine shops, storehouses, coal sheds, and other necessary buildings, and for building there a graving dry dock capable of receiving the largest warships of the navy, at a cost not exceeding \$2,000,000.

Upon the arrival of the Atlantic battleship fleet at Honolulu, on July 16, a board of officers, with Rear Admiral Seaton Schroeder as its senior member, met for the purpose of considering plans for the establishment of the new Pearl Harbor base and station. During the month preceding the arrival of the battleship fleet Civil Engineer Charles W. Parks, Assistant Civil Engineer G. S. Burrell, and several draftsmen detailed from the Bureau of Yards and Docks spent their time at Pearl Harbor, collecting data to be submitted to the Schroeder Board. This force will remain there to take charge of the construction of the new base, under the general direction of Civil Engineer Parks, who was until recently connected with the navy yard at Portsmouth, New Hampshire. Chief Naval Constructor Washington L. Capps, of the Bureau of Construction and Repair, also went to Honolulu with the battleship fleet, to inspect the proposed naval station's site and to report upon the location of the new dry dock and its appurtenances. The Schroeder Board has now completed its report. Rear Admiral Richard C. Hollyday, Chief of the Bureau of Yards and Docks, will leave Washington about September 1 for Honolulu, to inspect

the new site preparatory to the advertisement for proposals from contractors for the construction of the dock and the other structures authorized. The actual amount appropriated by Congress for inaugurating the work this year is \$1,000,000. Of this amount \$400,000 is toward dredging an entrance channel 35 feet deep; \$300,000 toward the construction of the dry dock; \$100,000 toward the erection of machine shops, which are to cost \$300,000 when completed; \$100,000 toward the erection of storehouses, which also are to cost \$300,000 when finished; and \$100,000 toward yard development. The development of this base is one of the most important projects upon which the Government has entered for some years. Pearl Harbor is 2,370 miles from Vancouver, 2,100 miles from San Francisco, 2,280 miles from San Diego, 3,580 miles from Salina Cruz, 4,665 miles from Panama, 4,410 miles from Sydney, 4,800 miles from Manila via Guam, 4,961 miles from Hong Kong, and 3,445 miles from Yokohama.

PLANS have been completed and the contract has just been let to the firm of J. C. Erickson, Seattle, for the construction of the proposed new dry dock at Puget Sound, at the northern terminus of our Pacific continental coast. This will be the largest Government dry dock in the country, and will rank with some of the most important graving docks abroad, although there are a number that are much larger. It will be the first dock exceeding 800 feet in length that has been undertaken by American naval authorities. Its length will be 820 feet at the coping level, from the inside of the coping at the head to the outer sill. This is 66 feet longer than our next largest Government dock, — the one that was recently completed at the League Island Navy Yard at Philadelphia. The width of the entrance of the proposed Puget Sound dock will be 115 feet 6 inches at the coping level, while the corresponding measurement for the League Island dock is nearly 103 feet; the depth of the Puget Sound dock will

Our
Largest
Dock

be 38 feet from the mean high water level to the sill of the dock, as against a depth of 30 feet for the League Island dock. The extreme length of the Puget Sound dock will be 863 feet on the center line at the coping level, from the outside of the head to the inside of the apron. This new dock for our extreme Northwestern coast will accommodate either the *Lusitania* or the *Mauretania*, and would take in the largest projected battleship up to at least 25,000 displacement. None of our other Government docks would accommodate either of these Cunarders, — not even the new dock which is being built at the New York Navy Yard. The dimensions of the *Lusitania* are 785 feet over all, 760 feet between perpendiculars, 88 feet beam, and draught varying from 33 feet to 37½ feet. The Puget Sound dock was originally authorized by Congress June 29, 1906. The sum of \$300,000 was then made available for the work; but, on being advertised, the Bureau of Yards and Docks received no bid low enough to warrant proceeding with the work, if a first-class dry dock was to be constructed. Congress had only authorized an expenditure of \$1,200,000, but this amount was exceeded by the proposals submitted. The last session of Congress increased the authorization to \$2,000,000, and this enables the Navy Department to build at Puget Sound the size and kind of dock it wanted, — one fully large enough to meet the demands of coming naval construction.

In anticipation of the establishment of a base at the new Charleston, South Carolina, Navy Yard, for torpedo craft along the Atlantic coast, arrangements have been made by the Navy Department, through the Bureau of Yards and Docks, for the construction of a number of slips at that navy yard. These slips will be seven in number, and the contract for the construction has just been let to the Penn Bridge Company for \$50,000. One of these slips will measure 560 feet in length by 30 feet wide, and the other six will each be 450 feet long by 10 feet wide. The erection of these slips is corollary to the recently developed movement for the creation of a well-organized flotilla of submarines, torpedo craft, and destroyers for the Atlantic coast, which are to carry out regular maneuvers, accompanied by parent ships, and are to have well-established bases of operation. While various bases may be used along the New England coast for summer maneuvers, the permanent base of the flotilla will be Charleston, on account of its strategic position in the event of an outbreak of hostilities.

Southern Torpedo Base

THE Navy Department has transferred two of our earlier submarines — the *Shark* and the *Porpoise* — to the Philip-

Submarines Reach Manila

ippines. These small under-water craft were prepared for their long voyage at the New York Navy Yard last spring and were hoisted aboard the United States naval collier *Cesar*, which sailed with them from that navy yard on April 23 for Manila via the Suez route. During the latter part of June the *Cesar* reached the Philippines, where she has remained. She carried also naval guns and a quantity of other military material for our Oriental possessions. However, the arrival of the *Cesar* at Manila has never been chronicled in the press, and, although accounts were published respecting the preparations for the voyage during February and March of the present year, the fact that the two submarines were en route to the other side of the world escaped notice, in the attention that was devoted to the cruise of the Atlantic battleship fleet and other forms of news. Lack of mention of the *Shark* and *Porpoise* may also have been partly due to the fact that after the *Cesar* started on her long voyage her name ceased to appear in the daily movements of naval craft issued at the Navy Department. For sufficient reasons it was regarded as best not to focus too much attention upon the shipment of the submarines, and since their arrival at Manila their names have not appeared in the regular publications of the stations of vessels of the Navy, although the names of other vessels of the submarine class, such as the unassigned *Pike*, which is at Mare Island, are given in those lists. The two submarines were scarcely the length of the collier which conveyed them, and it was an easy matter to carry them upon her deck. It was also easy to place them there, this being done with the big derrick alongside the *Cesar* when she was at the New York yard.

Naval Constructor Baxter of the New York Yard had a model of a submarine made in his shops, and then tried various ways of launching it into a barge tank. After a few weeks of experiment, he worked out a scheme which he believed would make it possible to launch the little boats safely and easily without the aid of a derrick at Manila. To carry out these plans a device was contrived and built upon the deck of the collier before she sailed for the Pacific. It was for the purpose of erecting this superstructure and also of strengthening the deck supports where the submarines were to rest that the *Cesar* was in dock before she sailed from New York. The *Shark* and the *Porpoise* are two of the three boats which were commissioned in 1903.

THE latest American armored cruisers are now in the service of the Navy, the *Montana* having been delivered to the Government July 10 and the *North Carolina* April 27. The transfer in each instance was made at the Norfolk Navy Yard, which is not far from the Newport News Shipbuilding Company's plant, where they were built under authority of the Act of Congress, approved April 27, 1904. These two vessels are identical in design, and they are also sister-ships to the *Tennessee* and *Washington*. All four of these craft represent the very latest thing in armored cruisers in the American Navy. The displacement of each is 14,500 tons (normal designed), or nearly one thousand tons greater than that of the armored cruisers of the *West Virginia* class,—the *West Virginia*, *Colorado*, *Maryland*, *California*, *Pennsylvania*, and *South Dakota*, each of which displaces 13,600 tons. With the six *West Virginias* and the four *Tennessees* we now have ten of these armored cruisers, and there should have been two more of one of these classes laid down, in order to constitute three entire divisions of four units each for tactical practice and exercise. The only other armored cruisers in the service are the *New York* and the *Brooklyn*, which displace, respectively, 8,150 and 9,215 tons, and were in the 21-knot class when on their trials; while the *West Virginia* and *Tennessee* classes have now each made over 22 knots on trial. The *North Carolina* and her three sisters each mounts four 10-inch breech-loading guns in turrets, and each has a broadside of sixteen 6-inch rapid-fire guns. Each of the six *West Virginias* carries four 8-inch breech-loaders in turrets and fourteen 6-inch rapid-firers on broadsides.

On her recent four-hour official trial, the *North Carolina* developed an approximate speed of 21.918 knots, and developed a horse-power of 26,038; while the approximate speed on her official twenty-four-hour trial was 20.6 knots, with a corresponding horse-power of 19,802. Her designers estimated that she would require but 23,000 horse-power to make 22 knots. The trial in which the *North Carolina* made 21.918 knots speed was held in January, over the Rockland, Maine, course, and she missed her contract speed of 22 knots by a narrow margin. She was given a third speed test off the Virginia Capes in February, and then maintained an average of 22.48 knots an hour, thereby establishing a new record for her class, although a forty-mile gale was blowing and the sea running high. Two months later, the *Montana*, in April, accomplished an average speed of 22.26 knots on her four-hour official trial, with 27,489 horse-power, and 20.48

knots during her twenty-four-hour endurance trial, at 19,102 horse-power. Late in June orders were given that when the *Montana* went into commission it should proceed on a month's "shaking down" cruise. Just prior to that the *North Carolina* went to Guantanamo, Cuba, and return on her "shaking down" cruise.

AMONG the "relics" of the old Navy which the Navy Department has recently sold is the old Civil War monitor *Canonicus*, which was exhibited at the Jamestown Exposition as one of the earliest existing types of the monitor. The *Canonicus* had been at the Norfolk Navy Yard for a long time. She was restored at a cost of about \$10,000, for exhibition at the exposition, where she attracted great attention, not only on account of the striking contrast between the old monitor and the modern warships of the great naval powers represented in the naval display in Hampton Roads, but also because the *Canonicus* rode at anchor in the waters of Hampton Roads not far from the scene of the first great battle between ironclads—that of the original *Monitor* and the *Merrimac*. Those who visited the exposition will recall the low and rakish, single-turreted, cheese-box sort of craft which was anchored just south of the station ships *Brooklyn*, *Texas*, and *Miantonomah*, each of these representing distinctive types of American naval construction,—the old *Texas* having been our first steel battleship, and the *Brooklyn* one of our first two armored cruisers. The *Canonicus* displaced only about 2,100 tons. After her sale she was taken in tow from the Norfolk Navy Yard to Philadelphia, to be broken up for junk. The *Canonicus* was named after an old Indian chieftain who was king of the Narragansett tribe in the latter part of the sixteenth century. *Canonicus* was at first unwilling to be friendly with the Pilgrims at New Plymouth; and, in order to show his contempt and defiance of the English, sent a message to Governor Bradford, with a bundle of arrows in a rattlesnake's skin. It was a challenge to war in the spring, and this symbol of hostility gave warning before the blow should be struck—a virtue seldom exercised by the Indians. Governor Bradford accepted the challenge by sending the quiver back filled with gunpowder and buckshot. The Indians returned it, as a token of peace, and *Canonicus* became a firm friend of the English colonists.

These old Indian names are fast disappearing from the naval list, and survive principally in the designation of a few older vessels and in a number of newer steam tugs.

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LETTERS TO THE EDITOR

THE FLAGSHIP'S PLACE IN THE BATTLE LINE

To the Editor of THE NAVY:—

The generally accepted formation for modern naval battle is the single line ahead or some slight modification. To "T" the opposing fleet is the great object, to accomplish which every maneuver is employed. If this can be done, the maximum amount of gunfire can be brought to bear against the leading vessel of the enemy. No battleship has yet been built that can successfully withstand the concentrated fire from an opposing fleet which has properly "Teed" the line to which it belonged.

In view of these facts, how do we place our battle leader—he who is the brains of our fleet—in the leading ship? Could he possibly be placed in a more exposed or dangerous position? Can he calmly and surely direct the ships of his command which have not yet become engaged, when he himself is in the midst of an inferno, with dead and dying all around him and under such a fearful storm of bursting shells that the very paint on the steel work is aflame? If he be of such heroic fiber, can he find means of communicating his orders, with his flagship a mass of wreck and ruin and the survivors of the crew in a life and death struggle with the flames above and the water below decks? What Admiral in such a situation is capable of directing the engagement in all its detail and of grasping every opportunity for turning the tide of battle? And, finally, how could he possibly be placed where he would be more likely to be killed or wounded?

All of these questions can be quickly answered by referring to any reliable account of the battle of Tsu-Shima. Admiral Rojesvsky's flagship, the *Kniaz Suvoroff*, was not the first vessel put out of action, simply because the Russian fleet had not completed its formation when the battle opened and the *Oslabya* was leading the line. However, the *Suvoroff* was out of action ten minutes after the *Oslabya*, and, as soon as she came under the Japanese fire, fleet orders ceased. Does any one who reads the account of the terrible effect of Japanese fire on the *Suvoroff* believe that the Russian Admiral was rightly placed for the most effective performance of his duties?

The lessons of Tsu-Shima are frequently slighted on account of the inferiority of the Russian personnel. Had Americans or British manned the Russian fleet on that eventful day, there would have been a different story to tell. Yes; they would never have been caught in an uncompleted formation, for one thing; and the flagship, instead of being the second vessel engaged, would have been the first, and consequently the first to drop out.

On land the commanding general no longer leads the charge, with gleaming sword aloft and plunging madly through the thickest of the fray. What the modern general loses in heroics, he more than makes up in businesslike efficiency. He has ceased to be the "leader" and has become the "director" of his men. From some safe position of observation, well behind the danger zone, he receives the reports from all parts of his firing line. He is in little or no personal danger, and is generally well away from the harrowing sights and sounds of the actual engagement. As a consequence, he can view the battle in the large and make each division and brigade play its part in the well-ordered plan of action he has mapped out; he can throw in his reserves where they are most needed and promptly take advantage of the slightest weakness shown by the enemy. Contrast his sane and safe position with that of the commanding admiral in the naval line of battle.

There are many more paintings and vivid word pictures of wild-eyed generals leading their fire-eating hosts into the jaws of death than there are of immaculate gold-lace admirals in the rigging of their flagships leading their fleets through a hail of bursting shell and over spouting mine fields; and yet, while we have long since replaced the dashing general of popular imagination with the quiet, businesslike battle director, we still cling to our traditional "hero" on water. Personal bravery is a splendid quality in any man; but it is, or should be considered, one of the least required in the director of the mighty forces of destruction brought into play in modern battle on either land or sea.

What we want in the leading ship is the heaviest guns and armor and the best and quickest gun crews; the Admiral in command should be far enough away to view the battle in the large,—“directing,” not “leading,” the line. Why should he be in a more exposed position than the general and his staff?

A general set of tactical regulations placing the flagship in the safest position in the different battle formations should be issued by the Navy Department. It is too much to ask our admirals to fly in the face of tradition on their own initiative, when such a course might lay them open to some slight suspicion of fear for personal safety. Why should the flagship be considered an integral part of the line for the first shock of battle? Why not place it off on the least exposed flank and bring it into action only as a reserve, or in the last extremity? From such a vantage point the commander-in-chief would be in touch with, and at the same time in a position to intelligently “direct,” the course of action.

PAUL R. DETURBERVILLE

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

ACCIDENTS IN THE BRITISH NAVY DURING
NIGHT ATTACK

July 15, 1908.

Much has been said, since the *Tiger* and *Gala* disasters, concerning the manner in which night attack is carried out in simulation of actual war conditions by the mosquito craft of the Royal British Navy, the daring with which these attacks are executed, and the necessity for the exercise of greater care in time of peace so as to reduce the element of risk to a minimum while obtaining the maximum approximation to actual warfare. Naturally the immediate effect of these disasters, followed so closely by the sinking of the *Gladiator* in collision with the American liner *St. Paul*, will be an effort to exercise greater care; but, in spite of Admiralty declarations that every known precaution has already been adopted in the direction of safety, there remain critics who advocate the absolute abandonment of the present methods of destroyer attack at night.

Those who have at heart the constant fighting trim of the Navy and who are at the same time thoroughly cognizant of the circumstances surrounding these daring night maneuvers would greatly regret the adoption of any such advice by the Admiralty. Without the continuation of torpedo night attack upon the basis on which it has been conducted in its development to its present high stage of efficiency, the various destroyer flotillas, as well as the cruisers and battleships operating with or against them, cannot be kept ready for any eventuality. Torpedo attack, especially at night, is destined to play an exceedingly important role in another great naval contest for the supremacy of the seas during the next decade.

Battleship and armored cruiser design is just now being formulated with especial reference to the danger of torpedo attack. The increased speed and radius of action of all modern destroyers and the marvelous development of the superheated, turbine-propelled torpedo have developed due concern in connection with the building of the newest craft for the first fighting line, as well as of the latest types of naval ordnance. With these efforts, on the one hand, to ward off the sting of the torpedo,

there should, on the other hand, under no circumstances, be any backward step in the preparation of mosquito craft for the part they are destined to play in future resort to war. If the present efficient development of the powerfully equipped destroyer is not overmatched by defensive developments in the torpedo defense of heavier craft, there is no reason why there should be any let-up in past efforts to make the smaller vessels as nearly perfect as possible through the proper training of their crews. There is an old adage about the dangers of peace being as great as those of war. This is undoubtedly true; and while it is true that terrible disasters may recurrently happen in ordinary peace maneuvers, there is no doubt whatever that the millennium will have arrived long before a navy may be kept in constant fighting trim without incurring some of the frightful risks of war.

The most competent carpenter sometimes wounds himself with his own sharp-edged tools, in spite of his practice and familiarity with those implements. Those who handle the tools of war cannot expect, and do not expect, to be prepared for the national defense without risk of danger. All they should, or do, expect is that they shall be equipped with the best obtainable fighting tools and told to use them with the greatest possible care. The entire British nation was shocked when thirty-five of the crew of the torpedo boat destroyer *Tiger*, as well as the commanding lieutenant, were sent to swift death in the collision with the cruiser *Berwick* during night attacks in the Channel last April. It all happened while a group of destroyers were making a sham attack on the fleet, when all lights were out. Naturally the risk was greater than if the lights had not been screened. But if the lights had been visible there would have been no assimilation of peace training to actual war conditions, or an approximation to the same, and the night attack might as well have been abandoned.

During the past few years these sham encounters have been carried out with the greatest bravery in the Royal Navy. More than once have disasters been narrowly averted. But just as the Persian line of hair may constitute the dividing line between the false and the true, so the fraction of a yard in the path of a destroyer skin-

ming past the bow of a swift cruiser may mean either complete success or utter disaster in a night torpedo attack. Probably the best answer to those who criticise this character of maneuvers as too close an approach to warfare for times of peace is that contained in the cold but highly enlightening figures quoted to the House of Commons early in June by Mr. McKenna, the new First Lord of the Admiralty.

On that occasion the new First Lord said, in response to interrogation, that in 1907 four accidents were known to the Admiralty to have occurred, during mimic night warfare, to vessels not carrying lights, but these involved only one injury. During 1908 two accidents had occurred, involving the loss of thirty-eight lives, but the absence of lights could not be ascribed as the sole cause of these accidents, or of any one of them. It was not possible to assess the cash value of the loss to the Admiralty arising from these cases, but night maneuvers without lights had taken place on one hundred and forty-six occasions during 1907 and 1908, the total aggregate number of ships engaged having been 2,299. Four accidents last year and two of the same kind thus far in 1908, or a total of six accidents, is a splendid showing for one hundred and forty-six sets of sham attacks at night, with over two thousand vessels engaged.

When analyzed to its logical conclusion, the fact remains that if British officers and men are to be trained for daring and efficient work in war, the Admiralty must allow them to accept all of the risks growing out of their profession. All of the danger lies in the absence of lights, but their uncovering would immediately disclose the presence of both the enemy's ships and the attacking craft. To tear down the system of night maneuvers without substituting a remedy for the situation, because there has been a modest minimum of accident in a maximum of actions, would certainly not do justice to the ambitions and sentiments of either officers or men who are perfectly willing to take the risk. It is the very fact that they are willing to take these chances, the very fact that they court the danger which sometimes meets their wooing, that has resulted in the few accidents that have occurred. If the men were not willing to take these chances, there would follow the even greater danger of destruction of the spirit of fighting, which is the foundation of all training of men for national defense and for war.

Major and Minor Maneuvers.—With the opening of July there came a complete mobilization of the British fleet, with the placing of every available vessel on a war

footing. Nucleus crew ships have had their complement raised to full strength, and a proportion of the older ships with small crews—special service vessels—were also manned. The number of pennants flying in home waters has been larger than ever before, the aggregate number of vessels comprising more than three hundred units. The coast guards were drawn upon to assist in manning the ships for the maneuvers. The summer embarkation of a section of the coast guard is provided for in the coast-guard regulations and took place this year as usual. The number of coast guardsmen embarked was about thirteen hundred and nine, and they were employed in craft of the Home Fleet.

More secrecy has been observed concerning this year's maneuvers than ever before. This decision has largely been influenced by the German bogie and the fact that very little leaks out about the lessons which the Germans acquire in their summer maneuvers. The attitude of the Admiralty toward the press has developed a storm of criticism and conflicting views in the service and daily publications, and has brought to the front the question of the advisability of allowing press correspondents to accompany military or naval forces either in war or during active maneuvers in time of peace. Press representatives were first invited to officially attend the naval maneuvers just twenty years ago. Since then the practice has grown to such an extent that fairly accurate accounts of recent maneuvers, especially those of 1906 and 1907, were published with charts explanatory of the results accomplished. It is contended that this is not good for the nation; that it is hardly worth while working out plans of naval defense, or schemes for the protection of British trade by the British fleet, if these projects are allowed to become public property for appropriation by the enemy. On the other hand, it is claimed that, while there is a certain amount of truth in this assertion, naval movements in actual warfare are largely created by conditions then existing, and are altogether likely to be entirely different from those attempted or anticipated in time of peace, and that exaggerated secrecy has been indulged during this year's summer practice. The chief loss to the British Navy through the barring of the press from the fleet is likely to come through the slipping away of popular interest, which might well be developed in naval affairs through the accounts of an enlightened press. With proper censorship of dispatches and careful issuance of permits to properly authorized naval correspondents, it is difficult for us to understand how the interests of the Empire can be damaged.

Despite the secrecy observed, the actual movements of over three hundred vessels cannot be entirely concealed and enough is bound to be learned through scientific study and analysis of the official announcements of ship and fleet movements to indicate to well-informed naval writers the general trend of the operations. Preparations for the mobilization began early in June. The selection of the North Sea this year, as last, as the main theatre of mimic war was alone indicative of the stress being laid by the Admiralty upon the importance of preparing for the supremacy of that increasingly important stretch of water. Beyond its horizon lies Germany, with its High Sea Fleet operating from the bases that are being developed around the mouth of the Elbe in the transfer of the center of Teutonic sea force from the Baltic through the Kiel Canal to the North Sea. Throughout British naval thought, argument, and consideration there runs the web and woof of the anticipated German "menace." The British building program has found its fulcrum with the public in the ambitions of the Kaiser to become the "Admiral of the Atlantic" and the whole-souled naval activity of the German people. This thought influenced the radical redistribution of the British Fleet several years ago, the calling home of heavier craft from the farthestmost ends of the Empire, and the constitution of the strong fighting line of the Home, Atlantic, and Channel Fleets. It pervades this year's maneuvers.

Torpedo Craft Under London Bridge.—In the past the Admiralty has lined up the torpedo craft with battleships and cruisers in the summer maneuvers. There has been a notable departure from this practice in the present exercises. The battleships, cruisers, and destroyers have this year been engaged in one set of exercises under the flag of Lord Charles Beresford, while the submarines and torpedo craft have been engaged in entirely separate operations around the coast. This is the first time that the mosquito craft have been engaged in independent maneuvers wholly distinct and apart from those of the main fleet. All the way around the coast and up to the Scottish firths these smaller vessels have been going in and out of harbors and familiarizing their officers and men with every nook and crevice of the water front. Responding to orders for this portion of the summer's training, sixteen torpedo boats, under Commander F. G. St. G. Brooker, left Sheerness several days ago for the Thames and surprised Londoners by mooring at various points between the Tower and London Bridge. Manned by full crews, they lay in groups of four or five, ready for action.

This was done as part of the work of the Home Defense Squadron, and the diminutive craft ran up to the Tower in response to a wireless message from the commanding officer in the North Sea. Large crowds were naturally attracted to the river fronts, for it was the first time anything of the sort had occurred since 1889, when a destroyer flotilla escorted the Persian Shah from Gravesend to Westminster. Returning to Sheerness, the flotilla coaled and then cruised in company to various coast points as far as the Humber. The other flotillas are this year having similar exercises.

A Long Submarine Cruise.—The under-water craft have also had instructive work cut out for them. One of the most interesting features was the long run made by the submarines from Dover all the way up the eastern coast to the Firth of Forth, without intervening stops. Throughout the greater part of this four hundred-mile trip they were accompanied by the cruisers *Bonaventure* and *Forth*, and part of the time the subaqueous craft were under water with nothing but their periscopes showing. This has shown the capacity of the B and C type, which have been developed under Admiralty auspices from the Holland class. Embraced in the scheme of operations under Admiral Beresford were provisions for attacks by submarines of the B and C types. Just before the B type craft mobilized for their share of the maneuvers they made a practice cruise to Torbay, where they are declared to have made over 80 per cent of hits with the 18-inch torpedoes.

The defenses of the Thames and Medway were mobilized in connection with the maneuvers, in expectation of an attack upon Sheerness. Troops were thrown into Sheerness and took station at Barton's Point and other batteries connected with the Thames and Medway defenses. The Sheerness flotilla, which had returned from the Thames to coal, acted as the hostile force the first night. Commander Brooker distributed his flotilla into three divisions for the attack. Electric searchlights were used by the defenders at Sheerness and on the Isle of Grain. The strong rays made it impossible for a single vessel to get by the defenses unobserved the opening night. Some time before the mosquito craft made their attacks, the torpedo boats were detected maneuvering around the Mouse lightship. The forts kept the craft under surveillance until they entered the firing zone, and then the torpedo boats made their dash for the harbor. A second division attacked in like manner shortly before midnight, and an hour later the third division steamed

up the Medway Channel. Not a boat, however, got into the river without coming within the fire from the forts.

During the maneuvers there were only fourteen battleships in home waters not taking part in the maneuvers. These comprised the *Implacable*, which was undergoing refit, and thirteen older battleships of the *Royal Sovereign*, *Renown*, *Centurion*, and *Trafalgar* classes, on the special service list. If it had been desirable to commission these vessels, Mr. McKenna informed members of the House of Commons that the necessary ratings for nucleus crews of active service men were available and that the balance of the crews could be completed by calling out the reserves.

THE GERMAN FLEET

BERLIN, July 15, 1908.

Gunnery.—In view of the vast strides now being made in gunnery in the United States and British navies, it is not surprising that great attention is being paid to this branch in the Imperial Marine. While no statistics of actual results achieved at target practice are published in this country, to anyone in touch with naval circles it is well known that such results fall but little short of those attained by rival fleets.

Germany is a firm advocate of nitro-cellulose as a propellant, thereby following the example of the United States and Japan; but in some of the older rapid-firers, especially those fitted with the Welin breech mechanism, smokeless powder in the form of a gelatine compound is used. This compound is also utilized in connection with the latest model of the 9.4-inch weapon, which takes a brass cartridge case. The projectiles include armor-piercing shot, armor-piercing shell, semi-armor-piercing shell (high explosive burster), common steel-pointed (high-explosive burster), and common shell (high-explosive burster).

While the 11-inch gun is the largest caliber weapon that has ever been mounted on a German warship, it is generally understood that the Krupp's are experimenting at Essen with a 12-inch model, since it has been considered necessary to make some adequate reply to the 13.5-inch guns which rumor says are to form the main battery of the British improved *St. Vincents*. But in the opinion of many experienced naval artillerymen, the 11-inch gun has many points in its favor. True, its 595-pound projectile is 255 pounds lighter than the 850-pound 12-inch shell, but this is an advantage at least to the men handling

ammunition at the other end of the hoist. The 1903 Krupp model of this caliber (11-inch, or 28 c.m.) is undoubtedly a magnificent weapon: its weight is forty-four tons, and with an initial velocity of 2,854 foot-seconds it will put a capped projectile through fourteen inches of Krupp cemented armor at a range of five thousand yards. The rate of fire with this gun is two rounds per minute, the recoil being utilized to return the weapon to firing position.

The German gunners are now trained on board warships fitted with the latest models of ordnance,—the battleship *Schnecken*, the large armored cruiser *Prinz Heinrich*, two small protected cruisers, and two armored coast defense ships, the *Acgir* and *Frithjof*, constituting the gunnery training squadron. These vessels are based upon Kiel and Danzig, and are under the supreme command of the Inspector of Naval Artillery, Rear-Admiral Pohl, who formerly commanded the scouting squadron attached to the battle-fleet. This officer had, until the end of last month, his headquarters at Kiel; but with the beginning of July these were removed to Sonderburg, a small Schleswig-Holstein town on the island of Alsén, situated in the Little Belt. The mining division, which was formerly amalgamated with the artillery branch, has now been established in separate headquarters at Cuxhaven. The separation of these two important branches of the service followed the lessons taught by the Russo-Japanese war.

Contracts for the New Vessels.—Hesitation on the part of the Admiralty as to the advisability of mounting larger caliber weapons than 11-inch on the big battleships authorized under this year's Navy Bill has resulted in the assignment of the contracts for the construction of these vessels being considerably delayed. This vexed question has now evidently been decided, however, with the result that all the contracts for this year's new constructions, with the exception of that for the new large armored cruiser *G*, have been placed. The complete list of contracts, so far, is as follows:—

- Battleship *Ersatz Oldenburg*, assigned to the Imperial yard at Wilhelmshaven;
- Battleship *Ersatz Siegfried*, to the Howaldt Works at Kiel;
- Battleship *Ersatz Beowulf*, to the Weser Company at Bremen;
- Small cruiser *Ersatz Schwalbe*, to the Germania (Krupp) yard at Kiel;

Small cruiser *Ersatz Sperber*, to the Imperial yard at Kiel;
River gunboat for China, to the Schichau yard at Danzig;
Five destroyers to the Germania yard, four to the Schichau yard, and three to the Vulkan Company at Stettin;
Four or six submarines, to the Imperial yard at Danzig.
No records in construction are expected to be attained in connection with the building of these vessels.

The Cruise of the High Sea Fleet.—The destination of the High Sea Fleet on its forthcoming Atlantic cruise is understood to be the Azores and the Canary Islands. The fleet will number seventeen battleships, ten cruisers, and the usual complement of auxiliary vessels. The torpedo flotillas, however, are expected to remain in home waters. This cruise is of especial interest, since it is the first that will have been undertaken by anything like a large squadron of German warships, outside the strictly limited sphere of operations in the North Sea and the Baltic. The navy was formerly always represented as being intended purely as a defensive force for the protection of the German coasts; but the Wilhelmstrasse authorities have been greatly impressed by the educative value of the long cruise of the United States battleship fleet and have determined to follow the example set. There is, of course, no solid reason why German squadrons should constantly maneuver practically within sight of their own littoral; but the press is nevertheless taking great pains to assure the world at large that no breach of the peace will result from this cruise. It is worthy of note that the Berlin Bourse has lately been exhibiting signs of agitation in this connection,—though, as a matter of fact, the Bourse is more or less subject to fits of groundless alarm. It should not be forgotten by these tremulous financiers, however, that a small German cruiser squadron recently made a flying trip as far as Vigo, and that cruises of the nature about to be undertaken by the High Sea Fleet afford excellent opportunities for training, and are, therefore, likely to be repeated. It is to be hoped that the cruise will not result in a revival of the apprehensions which were excited in this country by the announcement of the British naval maneuvers in the North Sea at a time when the coasts were not, as will be the case this week, denuded of all their available floating defenses.

Relative to this subject, one of the Conservative organs says that in consequence of the tension existing in the

international situation the forthcoming cruise of the German fleet to the Atlantic has produced a certain amount of sensation, seeing that the British Fleet is in the North Sea and in sight of Germany's coastline. "Up to the present," continues this journal, "it has always been customary in Germany to reply to every great concentration of our neighbors' troops upon our frontiers by a similar concentration on our part. This excellent principle deserves doubly to be followed, when it is a question of the defense of our coastline."

No doubt this is all very true; but it is surely impolitic to emphasize delicate questions of this nature at a time when there is certainly a good deal of thunder on the horizon of European politics. The most ardent German chauvinist is, or should be, perfectly aware that the Imperial Marine is in reality only entering upon a formidable stage. The vast majority of German battleships were built with the object of operating in the exceedingly shallow and shoal-infested waters bordering the Schleswig-Holstein coast and the comparatively protected Baltic Sea. They are thus of somewhat small dimensions; and, indeed, all those battleships prior to the *Braunschweigs* must be properly regarded as armored cruisers possessing but few qualities of speed. There is, of course, not the least doubt that the battle-fleet would render a good account of itself in an action; but, in view of the overwhelming forces which would almost certainly be brought against it in the event of a war, the result would be practically a foregone conclusion. This state of affairs is recognized by the responsible authorities, and, with the launch of the *Nassau*, Germany may be said to have begun a new era. Meanwhile, the firebrands of the press should control their martial fulminations until a more opportune moment arrives, since the premature implication of Germany in a devastating conflict would nullify all the sacrifices now being made to create a fleet powerful enough to defy any possible aggressor.

The Blücher.—The new armored cruiser *Blücher*, details of whose launch and dimensions have already appeared in these columns, is in many ways a "dark horse." Injurious, there does not appear to have been any substantial reason for her construction at all. She is, and will remain, a type apart: far below the British *Invincible* in fighting weight, she would hardly be a match even for a cruiser of the *Duke of Edinburgh* class, if rumor as to her armament is trustworthy. Secondly, the work of completing this cruiser is proceeding tentatively, in direct contrast to the energy displayed by the authorities where

other contemporary vessels are concerned, and no reason is officially assigned for the delay.

An ingenious solution of the mystery was suggested to your correspondent by a naval friend, — a solution which, it was asserted, is based upon more substantial grounds than theory: according to this authority the *Blücher* was designed and built as the result of a complete misunderstanding. In the first place, it must be remembered that Germany's financial situation is not such as to allow her to freely indulge in costly experiments where warships are the subject. Her policy is necessarily one of watching and awaiting the latest naval developments abroad, so that, when one or the other of the Powers evolves a new style of fighting unit, Germany may be in a position to follow the lead thus given, provided the foreign prototype proves to be a serviceable acquisition. But in the case of the cruiser under discussion a deviation from this sound rule would appear to have been made, with the results the reverse of satisfactory. When the British Admiralty first announced its intention of building the *Invincible*, her displacement was given at 15,000 tons, and the Wilhelmstrasse authorities at once set about the construction of a German counterpart. Not until twelve months later did it become known that the *Invincible's* actual displacement was 2,250 tons greater than that originally supposed, and by that time the *Blücher* was too far advanced to allow of her design being altered in conformity with her rival's increase in tonnage. Nevertheless, it is understood that some such attempt was made at the eleventh hour, the result being that surprises are expected when the vessel emerges from her present atmosphere of obscurity. On the one hand, it is said that her armament will be abnormally heavy for her 15,000 tons, while, on the other hand, there is a semi-official statement that 8.2-inch guns will constitute the main battery; but until more definite data become available such speculation is idle.

The Kaiser Canal.—When the appearance of the *Dreadnought* revolutionized existing ideas of modern warship construction and initiated a new era in naval architecture, it may be doubted whether any naval Power was placed at such a disadvantage as Germany. For years past the Admiralty, in view of the shallow nature of the North Sea adjacent to the coast, had laid down battleships of comparatively small tonnage, capable of operating in lough waters. The German coast is surrounded by sandy stretches; the rivers are tortuous, and the great naval harbors lack depth. As long, therefore, as the

fleet was designed on the basis of a purely defensive or local force, the small battleship represented the most logical compromise. It was to accommodate the rapid transfer of such vessels between the North Sea and the Baltic, and *vice versa*, that the Kaiser Wilhelm Canal was cut; but by a lack of foresight, as amazing as it was deplorable, the dimensions of this strategical waterway were so planned as to render its navigation by vessels of greater draught impossible. As a matter of fact, the battleships of the *Deutschland* class are the largest that can with safety make use of the canal, so that upon the completion of the battleship *Nassau* and other new 18,000-ton vessels now in course of construction, the only route for these vessels between the North Sea and the Baltic will be by way of the lengthy and dangerous Kattegat route.

The Kiel canal has been a source of disappointment. When first suggested, the project was hailed as the realization of an old dream of the German people, — a dream which they nursed long before the present Emperor converted them to the "Weltpolitik." Ships were to traverse the waterway in about eight hours; and besides units of the Imperial Marine, it was thought that merchant steamers in great numbers would take advantage of the shortcut, thus bringing in a welcome addition to the national revenue. As a matter of fact, neither of these expectations have been realized. The difficulties of navigating the confined channel of the canal have proved great, and ships have frequently stuck for long periods, entirely holding up traffic both ways. Moreover, the traffic has not been anything like as great as was originally estimated, and as a remunerative investment the canal signally failed to justify the heavy expense involved by its creation.

The disadvantages attaching to such a state of affairs are too obvious to call for comment; and since the only apparent remedy lay in the widening and deepening of the Kaiser Wilhelm Canal, this gigantic and costly task appeared inevitable. In the recently authorized Navy Bill was included the first instalment — \$375,000 — of an amount to cover the expenses of this project, the entire estimated cost reaching a total of \$55,000,000. Already the preliminary work had commenced, and the nation resigned itself to the supposed inevitable undertaking, when an alternative scheme was put forward by an engineer, Herr Hermann Mohlhörst, and is now receiving the earnest consideration of the Government.

Briefly outlined, this scheme is as follows: —

At present, with a single canal, apart from the disadvantages already enumerated, merchant shipping is

practically excluded from its use by the frequent passage of warships. Therefore the logical solution to all these difficulties, according to Herr Mohlhörst, is the construction of a second canal designed exclusively for naval use, thus leaving the old channel entirely free to merchant shipping. A glance at a map will show that the Kaiser Wilhelm Canal from its commencement at Holtzenau on Kiel Bay follows a winding course to its outlet at Brunsbüttel on the Elbe. The new canal would commence at Eckenförde, ten miles north of Kiel, and transverse Schleswig-Holstein almost in a straight line, crossing the old waterway at Grnahl and emerging in the Elbe some five miles east of Brunsbüttel. Upon looking into the details of Herr Mohlhörst's design, there is no reason to doubt its practicability; while its promoter asserts that its adoption would save the State over \$23,000,000 in actual expenditure, and \$1,000,000 in interest annually. These figures are, of course, to some extent hypothetical, but it is conceivable that a very substantial saving would be assured. The plan of widening and deepening the Kaiser Wilhelm Canal has never met with popular favor; and since the work would not result in increased facilities for merchant shipping, such as are provided for in Herr Mohlhörst's scheme, it is confidently expected that the commission now reviewing the whole question, strategical and commercial, will issue a report favorable to the latter proposal. The question, which is certainly one of the greatest importance, must shortly be settled one way or the other.

The Passing of the Fighting-Top.—Is the military mast, with its cumbersome fighting-tops and many tons of dead weight, as much an anachronism on modern men-of-war as the ram? This query has been raised by naval experts on more than one occasion, and it is now receiving fresh ventilation in German service circles. Opponents of the military mast contend that its disadvantages far outweigh its utility. As an elevated platform for rapid-fire guns to beat off torpedo attack, something may be said in its favor; but, so far as can be seen, that is its sole claim to retention. The additional weight is enormous; it offers a conspicuous target to hostile fire, and a well-aimed big shell or two might bring the whole structure crashing down, possibly totally disabling the ship, or, at least, doing fearful damage and putting several guns of the main battery out of action. Even its practicability as a platform for rapid-fire guns is questionable.

The battle of Tsushima conclusively demonstrated that no naval commander would send his torpedo-boats to at-

tack a battleship or cruiser which had not previously been subjected to a merciless hammering, disturbing the morale of the crew and destroying such light anti-torpedo weapons as were distributed about the superstructure and in the unsheltered fighting-tops. Such guns disabled, destroyers could approach to within torpedo range with a large measure of impunity.

Although Great Britain, Italy, and Japan have altogether abandoned the fighting-top in their new ships, contenting themselves with an insignificant crow's-nest for fire-control purposes, yet Germany by no means stands alone in retaining the fighting-top. United States battleships and cruisers of late types have been characterized by such discredited structures; and France, while having considerably amended her former policy of erecting preposterous edifices aloft,—with amazing results in the case of the *Charles Martel*, *Amiral Tréhouart*, and *Magenta*,—still possesses a lingering affection for the "lunette," as the fighting-top has sometimes been mis-called. The German type of mast structure, however, is perhaps the least practicable of any, and no grounds save custom exist for its retention. Its form has remained the same for twenty years, and there is reason for believing that the new battleships of the *Nassau* type will be adorned with the same archaic military mast. The German pattern of fighting-top is the usual circular platform, with an overhead shield forming a roof. Such tops are nothing less than well-designed death-traps, for it will be readily understood that, while this covering can furnish no additional protection, it would supply the necessary resistance for bursting a shell which might otherwise have passed harmlessly overhead; and the explosion of the smallest projectile in such a confined space would inevitably mean death to every man in the top. No naval man of experience can be found to advocate the continued use of the fighting-top; but it is one of those cases where expert knowledge and experience are impotent to make their voices heard against the convenient deafness of the civilian designer.

The Brazilian "Dreadnoughts."—The three Brazilian battleships, the *Rio de Janeiro*, the *Minas Geraes*, and the *São Paulo*, building in England, continue to excite much discussion in German naval circles, where it is now reported that Japan is negotiating with Brazil for their purchase. Personally I believe—and my opinion is shared by a number of naval men and politicians—this report to be nothing more than a "red herring" drawn across the trail of dangerous speculation by somebody in

the neighborhood of Whitehall. The supplementary estimates now demanded in England will, if granted, almost certainly be used to cover the purchase of at least two of these vessels, whose armament of twelve 12-inch guns (not 13.5-inch, as previously reported) render them very much more powerful than the *Dreadnought*. I am able to give an emphatic denial to the report circulated in several journals to the effect that Germany is prepared to make a bid for the Brazilian ships. The vital principle of German naval policy is homogeneity, a principle that would be violated by the inclusion of these battleships in the fleet, since in every essential detail they are a direct contrast to the design favored by the Wilhelmstrasse.

In my Berlin dispatch to the January number of *THE NAVY* I mentioned the suspicion prevailing in German naval circles that these battleships, which are building in the English yards at Elswick and Barrow-in-Furness, ostensibly for Brazil, were actually designed to take their place in the battle-fleet of Great Britain. There were several suspicious circumstances connected with the building of these vessels which rendered the supposition by no means improbable, and it is therefore not surprising to note that questions have been asked in the British Parliament concerning them. An interpellation was made as to whether England contemplated the purchase of these vessels, or whether negotiations had taken place between Brazil and a Continental Power respecting them,—questions which elicited a very evasive reply from the Parliamentary Secretary to the Admiralty. It was too early in the day, he said, to discuss the matter, but the House might rest assured that the two battleships in question would not be allowed to disturb the balance of naval power in Europe to the detriment of England. This reply is not without significance, and we would not be surprised to hear that a supplementary vote has been asked in Parliament to cover the purchase of these cidevant Brazilian fighting ships. In this connection it may be stated that the first suggestion of the two battleships eventually flying the White Ensign was exclusively put forward in the foreign correspondence of *THE NAVY*.

There is every probability that our forecast in regard to the Brazilian ships will prove correct in the long run, though the Paris edition of the *New York Herald* has definitely settled upon Japan as their ultimate purchaser. The data upon which some papers build many-columned articles is, however, as I have said, very probably supplied by some obliging but not disinterested official of the British Admiralty. For several reasons Great Britain is desirous of concealing her future naval program until the last possible moment, and no doubt intense satisfac-

tion prevails at Whitehall over the digression so thoughtfully provided by certain organs of the press.

The German Navy League.—The German Navy League ("Flottenverein") has issued its report for 1907, which gives an interesting and graphic account of its activity during the past year, and contains the following sentence: "Our unceasing activity to obtain new members has contributed to the result that to-day, alike in the plains of North Germany and in the mountains of South Germany, the workman and the peasant, the merchant and the savant, have become convinced that Germany is absolutely in need of a strong and efficient fleet for the protection of her interests and for the defense of her honor." Lecturers speaking on behalf of the Flottenverein in all parts of Germany lay stress on the necessity of introducing an acceleration of the building program, and in the report it is pointed out that: "The treatment of the new Navy Act Amendment Bill in the Reichstag at the end of last year showed in the clearest possible manner that the idea of possessing a Navy was becoming ingrained in the German nation."

The Navy League appears to be slowly extricating itself from the Serboman bog into which excess of zeal and too ardent patriotism involved it. Since the resignation of General Keim, successive attempts were made to nominate a suitable successor, and a short time ago it was announced that in Prince Salm-Horstmar the right man had been found. The Prince, however, at the eleventh hour declined to assume the presidency of the League, with the result that the Vice-President, Admiral von Köster, steps into his shoes. Whether peace is now assured among the million-old members remains to be seen, but a recrudescence of the racial and theological disputes between members of the executive committee can have but one end, and that is positive disaster. The League has indubitably done more to urge upon the country the necessity of a mighty navy than any other organization or individual. It is under the very thinly veiled supervision of the Crown itself, while the Admiralty takes more than a paternal interest in its career. In one sense its work is done, for it has succeeded in inculcating in the mind of almost every German elector ambitions for sea-power which a decade ago he would have rejected with scorn. The machine once started, it only remains for the League to stand by and adjust any faulty rivet in the driving-gear, and generally to superintend the working of the organization. The danger lies in the possibility of some high official connected with the League endeavoring to force the machine at high pressure, as did General

Keim, and thereby causing a rupture worse than that which early in the present year threatened to alienate a large section of the most influential members.

Teuton and British "Dreadnoughts."—Now that Germany has steadily settled down to contest the supremacy of the seas with Great Britain, the struggle is being prosecuted with all that dogged determination which is a national characteristic. Totally outnumbered at the present moment as she is, there is every indication that Germany will considerably reduce her rival's long lead in the near future, as the following figures demonstrate. It must be remembered that these figures take count only of the current British naval program, whereas they deal with the German continuous building proposals for consecutive years:—

BRITISH DREADNOUGHTS.

- Completed in 1909, 5 battleships and 3 armored cruisers, making 8 *Dreadnoughts*.
- Completed in 1910, 2 more battleships, making 10 *Dreadnoughts*.
- Completed in 1911, 1 more battleship and another armored cruiser, making 12 *Dreadnoughts*.
- Completed in 1912, by the end of February (not counting the 1909 program) Britain will have 8 *Dreadnoughts* and 4 *Invincibles*; to which may be added the *Agamemnon* and *Lord Nelson*.

GERMAN DREADNOUGHTS.

- Completed in 1909, 1 *Dreadnought* battleship.
- Completed in 1910, 2 battleships and 2 cruisers, making 5 *Dreadnoughts*.
- Completed in 1911, 2 battleships and 1 cruiser, making 8 *Dreadnoughts*.
- Completed in 1912 (including 3 sanctioned for the 1909 program), by the end of March, Germany will have 10 *Dreadnoughts* and 3 *Invincibles*.

These figures show that unless Great Britain is prepared to authorize phenomenally large programs during the next and succeeding years, she will possess no margin of superiority over Germany, so far as battleships and cruisers of the *Dreadnought* and *Invincible* types are concerned. It is, of course, almost certain that the significance of such statistics is fully realized by the British Admiralty; but, hampered as they are by a Cabinet whose tendencies are toward the use of soft words which turn away wrath rather than to the dread arbitrament of war and to whom expenditure on armaments is anathema, they will experience considerable difficulty in extracting the necessary cash in order to outdistance Germany in the race for supremacy.

Heligoland, the Key to the North Sea.—It is officially announced that during the next year or so the sum of eight million dollars will be laid out in fortifying Heligoland and in carrying out other work for the Imperial Marine. A harbor for torpedo-boats is to be built as a refuge for such craft and for scouts in time of war; the cost will be \$7,500,000. The sum of \$312,000 will be spent in erecting new fortifications, and a second set of barracks will be built at a cost of \$175,000. In view of the scantiness of the local amusements, the authorities have decided to equip the new barracks with skittle-alleys, for the amusement of the sailors stationed on the island. According to all accounts, the alarming symptoms of deterioration, which had formerly been observed on every side of Heligoland and which threatened to undermine the costly harbor and defensive works, have been eradicated by the prompt measures taken. Millions have already been expended on Heligoland; but in view of its immense strategical value, the money is regarded as having been well spent. The island is to be Germany's Gibraltar in the North Sea. At present her principal naval bases are in the Baltic. The Kiel canal, as I have already pointed out, is useless for ships of the *Dreadnought* type, and to reach the outer sea they would be compelled—at least until such time as the canal is widened or another constructed—to pass the narrow straits between Denmark and Sweden. Nothing would be easier than for a hostile fleet to bar this passage, and Germany realizes the fact. Her whole aim and object, therefore, is to establish a naval base outside the Baltic. The batteries already constructed on Heligoland are of more than ordinary strength, comprising as they do 11-inch guns in isolated armored turrets, besides many medium caliber and smaller rapid-firers. In former years the island was a favorite summer resort, but it is noteworthy that the Government is discouraging holiday-makers now. The former gay panorama of a fashionable resort has been replaced by rows of ugly barracks, concrete batteries, and long lines of grim warships at anchor. Naval uniforms are everywhere visible, and, in fact, the island has undergone a complete transformation.

The three new battleships of the improved *Deutschland* class, the *Pommern*, the *Hannover*, and the *Schlesien*, have successfully completed their trials, and have recorded a speed respectively of 19.21 knots, 19.16 knots, and 19.2 knots, as against a contract speed of 18 knots. Similar satisfactory results are expected in the case of the *Schleswig-Holstein*, which is now entering upon her preliminary trials.

H. C. B.

THE NAVAL CONFERENCE AT NEWPORT

What is undoubtedly one of the most important and far-reaching conferences in the history of the American Navy is in progress at the Naval War College at Newport, Rhode Island, this month. Since the establishment of the summer conferences of officers of the service at that institution, the trend and scope of their work has been growing in a way that augurs well for the future of the Navy. It is there that the General Board of the Navy holds its summer sessions; there that the war game is played for all it is worth; there that the post-graduate problems of naval training are elaborated.

This year's gathering is even more notable than former ones, and has brought together one of the most formidable arrays of naval talent in recent naval development in a peculiarly interesting manner. Of course the cardinal work of the present midsummer conference under the auspices of the War College is the consideration of the plans drawn up for the two new 20,000-ton battleships of improved *Delaware* type, which were authorized toward the end of the last session of Congress. There is more than usual interest in battleship design at this time for several reasons. The marvelous growth of the *Dreadnought* idea, the recent Senate Committee hearings on naval designs of the past, the aroused interest of the American people in all that pertains to the steady and increasing welfare of every branch of the naval service, the extended cruise of the sixteen battleships of the Atlantic fleet around the coast of South America and now across the Pacific for a circumnavigation of the globe, followed by the reports which have been received from Rear Admiral Robley D. Evans and officers under his former command in that fleet, have focused attention and excited popular interest more than at any other time in the growth of our new Navy. Whatever the ultimate outcome of the conference, it now seems certain that incalculable good will be the result.

PLANNING THE NEW BATTLESHIPS

The two battleships upon which so much attention is thus being concentrated are to be known as the *Florida* and the *Utah*. One of them is to be built at the Brooklyn Navy yard, while the other is to be let out to private contract, unless the Department in its discretion sees fit to have it, too, constructed by Government forces. As soon

as assurance came from Congress toward the end of its recent session that the service would have two new battleships and certain other craft, it was possible to complete the preliminary drawings of these vessels upon which the Navy Department Bureaus were engaged. The subject was then discussed in the Board on Construction, where action had already been taken to make use of suggestions received from Rear Admiral Evans and other officers of the fleet. Some two hundred officers had submitted reports from the Atlantic fleet, suggesting changes, and these recommendations dealt with all possible features of structural, ordnance, and marine engineering design.

After the plans of the Board on Construction had been submitted to the Department, they were forwarded to Newport for study and analysis by the annual midsummer gathering of officers at the Naval War College. From the beginning of this year's work, President Roosevelt manifested deep interest in the year's gathering at Newport, and orders were given assigning many prominent officers, representing various phases of naval thought and effort, to special temporary duty in attendance upon the War College Conference.

On Wednesday, July 23, President Roosevelt steamed over from Oyster Bay to Newport and spent the day at the War College, delivering an important address to the assembled officers, and afterward participating in general conference, concerning the details of which little real information has reached the public beyond the fact that he plainly told the officers in executive council that he looked forward to *results*. During his day at Newport the President asked to be told what the conference had done since it had taken up consideration of the battleship plans, and many questions were propounded by the chief executive respecting various features of design. In the daily press there have been some rather erratic reports, asserting that one result of the Newport conference would be the abolition of the General Board of the Navy and another the elimination of the Board on Construction. Opinions vary as to the changes of organization, if any, that may follow, but it is the majority opinion in Washington that neither of these boards will be marooned, and the belief is likewise strong that there may be created a Board on Design to create plans the execution of which may be left to the Board on Construction.

Everywhere in naval circles at the capital gratification is expressed over the character of the Newport gathering and the President's hearty interest in the welfare of all that pertains to the design, structure, and equipment of vessels. Congress took an important step last winter when it established the precedent of making a large appropriation for new battleships simultaneously with the authorization of those vessels. Hand in hand with this policy must go the perfection of battleship plans after the authority and the money are granted by Congress. One of the most important things to be accomplished in this connection is the embodiment of the best and sincerest and most advanced naval genius of the period in every new vessel. The Newport Conference may be regarded as a long stride in this direction and the natural corollary of what Congress did last winter.

THE LOGIC OF EVENTS

There is a pretty general realization now that the Conference at the War College is a step also toward what many advisers in the service have been advocating for a long time in the interest of naval progress,—that is, that more attention is being paid, since the cruise of the Atlantic fleet, to the recommendations and suggestions as well as the complaints coming from seagoing officers. Battleship design is at best a compromise involving some sacrifices here and there in order to gain certain advantages, whether of speed, gun-power, or numbers; but the conviction is now pretty firm that this compromise should come only after thorough consideration of voluntary and even of invited recommendations in a general competition of genius. Pending the announcement of the result of the Newport gathering, the work on the tentative plans for the *Florida* and *Utah*—so far as working details are concerned—has been suspended, and the call for proposals from private shipbuilders in competition for the building of the *Utah* has been temporarily postponed.

THE OFFICERS ATTENDING THE CONFERENCE

Nearly fifty well-known officers of the Navy were given orders by the Bureau of Navigation to attend the conference at Newport on the day of the President's address. These comprised nine rear-admirals, nine captains, as many commanders, and others of lower rank in the service. They were divided into three groupings. The first group consisted of the following officers of the Naval War College:—

Rear Admiral John P. Merrell, President of the Naval War College, and second ranking member of the General Board of the Navy.

Rear Admiral Stephen B. Luce, retired, on special duty at the War College.
 Captain William McLittle, retired, on special duty at the War College.
 Commander Roy C. Smith.
 Commander William L. Rodgers.
 Commander James H. Oliver, the new chief of the Pacific Fleet.
 Commander William B. Fletcher, of the War College Staff.
 Major of Marines William N. McKelvy, also of the War College Staff.

The second group included the following officers, who were ordered to duty at Newport in attendance upon the annual summer conference of officers at the War College:—

Rear Admiral Royal R. Ingersoll, formerly chief of staff to Rear Admiral Evans of the Atlantic Fleet; now on duty in connection with the General Board.
 Rear Admiral Raymond P. Rodgers, Chief Intelligence Officer of the Navy.
 Captain Thomas C. McLean, of the Board of Inspection and Survey.
 Captain Edward B. Barry, who has been the supervisor of naval auxiliaries.
 Captain Lewis C. Heilner, commandant of the Pensacola Navy Yard.
 Captain Sidney A. Staunton, formerly of the *Colorado*, now on duty with the General Board of the Navy.
 Captain Frank F. Fletcher, on duty with the General Board of the Navy.
 Commander John T. Newton.
 Commander Joseph L. Jayne, on duty with the General Board.
 Commander Frank K. Hill, on duty with the General Board.
 Lieutenant Commander Archibald H. Davis.
 Lieutenant Walter R. Gherardi, who commanded the *Fauntleroy* on the voyage of the Atlantic Fleet.
 Lieutenant Edward H. Watson.
 Lieutenant Lyman A. Cotton.
 Lieutenant Frank D. Berrien.
 Lieutenant Samuel B. Thomas.
 Surgeon Edward S. Bogart, Jr.
 Naval Constructor Robert Stocker.

The following officers were ordered to report for special temporary duty in connection with the conference attending the visit of the President to Newport:—

Rear Admiral Caspar F. Goodrich, commandant of the New York Navy Yard.
 Rear Admiral Eugene H. C. Lentz, commandant of the Washington Navy Yard.
 Rear Admiral Albert R. Couden, an authority on ordnance.

Rear Admiral John E. Pillsbury, Chief of the Bureau of Navigation and a member of the General Board of the Navy; also of the Army and Navy Joint Board.
 Rear Admiral William Swift, commandant of the Boston Navy Yard.
 Captain Charles J. Badger, Superintendent of the United States Naval Academy.
 Captain Aaron Ward, until recently in command of the *Pennsylvania* on the Pacific Station.
 Captain Nathan E. Niles.
 Commander Albert L. Key, commander of the scout cruiser *Salem*, formerly naval aid to the President.
 Commander William S. Sims, general inspector of target practice and naval aid to the President.
 Lieutenant Commander Arthur L. Willard, ordnance officer of the *Idaho*.
 Lieutenant Commander Horace G. Macfarland.
 Lieutenant Commander Mark L. Bristol, recently on the *Connecticut*.
 Lieutenant Commander George B. Bradshaw, assistant inspector of target practice.
 Lieutenant Commander Walter S. Crosley.
 Lieutenant Commander Frederick A. Traut.
 Lieutenant Donald C. Bingham.
 Lieutenant Edward J. Marquart.
 Lieutenant Percy W. Foote.
 Naval Constructor David W. Taylor.
 Lieutenant John W. Timmons.

ARRIVAL OF THE PRESIDENT

As the President's yacht *Mayflower* steamed up the bay toward Newport, he received salutes from the famous old *Constellation*, now over a century old, and the *Olympia*, Dewey's famous flagship at Manila Bay. Ten years have elapsed since that battle, and yet battleship design in the building of *Dreadnoughts* is almost as far advanced over the type of the *Olympia* as she was over the most advanced types prior to the transition from sail to steam. President Roosevelt spent all of his time at Newport upon the naval island. On landing he was greeted by Rear Admiral John Porter Merrell, president of the War College; Commander William F. Fullam, Commandant of the naval training station; and by the staffs of the college and station. Assistant Secretary of the Navy Truman H. Newberry and General Horace Porter, president of the Navy League and Chairman of the Board of Visitors to the Naval Academy, were among those attending the conference.

After scrutinizing the assembled battalion of apprentice seamen of the training station and inquiring about their training, the President said to Admiral Merrell and Captain Fullam:—

"I want to speak a word to the commanders of the battalions and to the companies here and through them to the apprentices. I want to say how pleased I am with the bearing, the whole tone and look of evident character of this battalion. It is a fine thing, and, Captain Fullam, I am particularly pleased to see it handled as it was by a warrant officer.

"Before Santiago, in the army there, we always used to say that if every commissioned officer were killed these sergeants would take the army into Santiago.

"I believe in the enlisted men of the American Navy with all my heart; I believe that we now have the enlisted men brought to such a point that if in battle on a given ship the commissioned officers were to be killed, the enlisted men would be capable of bringing the fight to a victorious conclusion and doing it all, fire control and everything. Captain Fullam, I congratulate you; Admiral, I congratulate you."

THE PRESIDENT'S ADDRESS

President Roosevelt said, in his speech before the executive conference:—

"There are only a few things that I desire to say today to the conference, and what I have to say really is said less to the officers present than to the great bulk of my fellow-countrymen outside. I could not speak to you technically. I can speak to my fellow-countrymen, who are deeply interested in the American Navy, but who sometimes tend to be misled as to the kind of navy we should have and as to what the navy can and ought to do.

"For instance, there are always certain numbers of well-meaning, amiable individuals, coupled with others not quite so well-meaning, who advocate merely a coast defense navy. Such advocacy illustrates a habit of mind as old as human nature itself—the desire at the same time to do something and not to do it.

"No fight was ever won yet except by hitting, and the one unforgivable offense in any man is to hit soft. That applies to the individual and it applies to the nation, and those who advocate a coast-defense navy are advocating that we shall adopt, as a national principle, the principle of hitting soft. I hope with all my heart that never will this nation of ours hit unless it cannot possibly be helped. I believe that the nation should scrupulously refrain from wronging or insulting another nation; that it should put up with a good deal in the way of misconduct on the part of others before going to war. But when this nation does have to go to war, such war will only be excusable if the nation intends to hammer its opponent until that opponent quits fighting.

"For the protection of our coast we need fortifications, not merely to protect the salient points of our possessions, but so that the navy can be footless. A year ago, at the time it was announced that the fleet was to go abroad, there was a certain number of newspapers, especially in

my own city of New York, that raised a clamorous protest against it. It took at one time the form of a mistaken prophecy to the effect that the fleet would not be allowed to go around the world, and one of the reasons alleged was that to let it go around the world would leave New York defenseless in the event of war. The theory evidently was that the fleet, or a portion of it, would be used especially to protect New York and other cities in the event of war.

"If war comes at any time in the future, that administration under which it comes will, indeed, be guilty of folly if it use the fleet to protect any port. Let the port be protected by the fortifications; the fleet must be footless to search out and destroy the enemy's fleet. That is the only function that can justify the fleet's existence, and that function cannot exist in the case of such a ridiculous fleet as the fleet would be if it were only possible to use it for coast-defense purposes.

"In any question of national policy, when statesmen, when the people behind the political leaders, embark on any given policy, they build up for themselves a time of humiliation and disaster in the future if they do not prepare to make that policy effective. There is something to be said (from my standpoint not much, but still something) for the theory that this nation shall never have any interests outside its own borders, and shall assume toward other nations an attitude of such meekness that no trouble can ever possibly come.

"It is a defensible policy. But a wholly indefensible policy would be consistently to work for the assumption of responsibilities without making any provision for meeting the demands necessarily entailed by those responsibilities. To be rich, aggressive and unarmed is to invite certain disaster and humiliation.

"We have taken the Philippines, but if we had not taken them, not a particle of difference would be made as regards the needs of our naval policies. There has been a division among this people as to taking the Philippines. There has been no division on the Monroe Doctrine; no division on building, maintaining, policing, and defending the Panama Canal; no division about Hawaii and Porto Rico; no division about keeping Alaska, which, though on the continent, is just as much separated as if it was an island; no division about asserting our superior right to defend and protect Cuba. Not one of the courses of action thus outlined can be followed out, excepting with a first-class navy. The Monroe Doctrine was in danger of falling not merely into disuse, but into contempt, until we began to build up our navy. The Monroe Doctrine won't be observed by foreign nations with sufficient strength to disregard it, when once it becomes their interest to disregard it, unless we have a navy sufficient to make our assertion of the doctrine good. The Monroe Doctrine unbacked by a navy is an empty boast, and there exist but few more contemptible characters, individual or national, than the man or nation who boasts and when the boast is challenged fails to make good.

"If we have a coast-defense navy only, we had better at once turn over the Panama Canal to some stronger and braver nation, which would not limit itself merely to a coast-defense navy and could protect it. If we should limit ourselves merely to a navy that would confine us to defensive war,—war certain in the end to be successful,—it would be well at once to give up Hawaii, to give up Porto Rico, to give up Alaska, and to say that we had no more interest in Cuba than the smallest outside Powers. If we intend to claim to be a great nation, then we must fit ourselves so that we may be ready at need to make good that claim. That can only be done by building up and maintaining at the highest point of efficiency the United States Navy.

"There is a curious corollary to what I am just saying. If we really make good the claim, the chances are infinitesimal that it will ever be necessary to do so. The real chance of war for this nation comes only if we combine a policy which disregards the interests or feelings of others with a policy of helplessness to hold our own if our right to do as we wish is challenged. If, on the other hand, we are ready in very fact to hold our own, the chances become infinitesimal that we will be called upon to do so.

"But, constituted as this people is, if we did not have a foreign possession; if we abandoned the Monroe Doctrine; if we handed over to some other Power the Panama Canal, it would still be necessary for us to have a navy, and a strong fighting navy.

"We do not want any navy at all if it is not a first-class one; and such a navy will be necessary for us just so long as we demand the right to administer our national affairs as we think best. This country is as yet in its youth. In the process of building up, many hundreds of thousands of immigrants are coming here from all parts of the world, representing many different nationalities, many different strata of cultivation, of civilization.

"In consequence there are points of friction between this country and other countries such as exist in no other nation.

"Ultimately,—and I think at a not very far distant period,—as this country grows up it will become more and more important that we should keep on the highest possible level the plane of living of our workmen: for the chief end of a national policy in the country should be to keep on the highest level of prosperity the tiller of the soil and the wage-worker, for the prosperity of all other classes will follow their prosperity. Therefore, gentlemen, as it becomes more and more important to keep that prosperity on a high level, it is very possible that we shall have to exercise a continually greater supervision, a continually greater exercise of the right of rejection among immigrants that come hither, and shall, it may be, take an attitude that will tend at first to provoke friction. Now, it is our undoubted right to say what people, what persons, shall come to this country to live, to work, to become citizens.

"The theory of certain of our fellow-citizens that we can permanently follow a policy of peace with insult is erroneous. We must stand up for our rights firmly, but temperately and courteously, and with all possible respect, not merely for the rights, but for the feelings of others.

"It is absolutely necessary that if we claim for ourselves the right to choose who shall come here, we shall be in trim to uphold that right if any power challenges it, and it cannot be upheld by words; it cannot be upheld by a coast-defense navy. It can be upheld only by the possession of an efficient fighting navy,—a navy able to preserve the honor and the interest of the United States, not by inviting attack on our shores and then seeing if we cannot repel it, but by taking such action as shall guarantee us against our shores being attacked.

"At the present day the Monroe Doctrine is unchallenged, and the people abroad who used to sneer at it, now say it is a pretty good doctrine after all; a useful doctrine, on the whole, for the peace of the world. What has produced that change? Words? Not a bit of it. Diplomacy? Only in so far as diplomacy rested on the substantial basis of potential force. The voyage of the sixteen battleships around South America through the Straits of Magellan, from Hampton Roads to Puget Sound,—that was the most instructive object lesson that had ever been afforded as to the reality of the Monroe Doctrine.

"Now, gentlemen, I wish to reiterate, with just as much earnestness as I have spoken to-day on other subjects, that I want a resistless fighting navy, because it is the most effective guarantee of peace that this country can have. Uncle Sam can well afford to pay for his peace and safety so cheap an insurance policy as is im-

plied in the maintenance of the United States Navy. All of the leaders of our people are fond of assuring this people that it is a great people. We are a great people. That ought not to be a subject for boastfulness; it ought to be a subject for serious consideration, because of the heavy responsibilities that go with it. We cannot help playing a great part in the world; but we can very easily help playing that part well, and to be a great people and make a great failure is as unattractive a picture as history affords. It is not open to us to decide whether or not the career that we lead shall be important; it has got to be important. All we can decide is as to whether our success shall be great or our failure great; we are sure to make either a great failure or a great success.

"I would not pretend for a moment, gentlemen, to you or any one else, that merely military proficiency on land or sea would by itself make this or any other nation great. First and foremost come the duties within the gates of our own household; first and foremost our duty is to strive to bring about a better administration of justice, cleaner, juster, more equitable methods in our political, business, and social life, the reign of that orderly liberty which was the first consideration in the minds of the founders of this republic. Our duties at home are of first importance; but our duties abroad are of vital consequence also. This nation may fall, no matter how well it keeps itself prepared against the possibility of disaster from abroad. But it will certainly fall if we do not thus keep ourselves prepared. We need greatly in the interest of peace, in the interest of true national greatness, that the United States Navy, with its ships, its officers, its enlisted men, shall at every point be kept in the highest possible condition of efficiency and well-being."



A RELIC OF THE OLD NAVY

The Monitor *Canonicus*, at anchor in Hampton Roads, after her restoration for exhibition at the Jamestown Exposition,—her last service in the new navy



THE NORTH CAROLINA, JUST BEFORE LAUNCHING
Showing the general shape and lines of the hull before the armor was placed in position

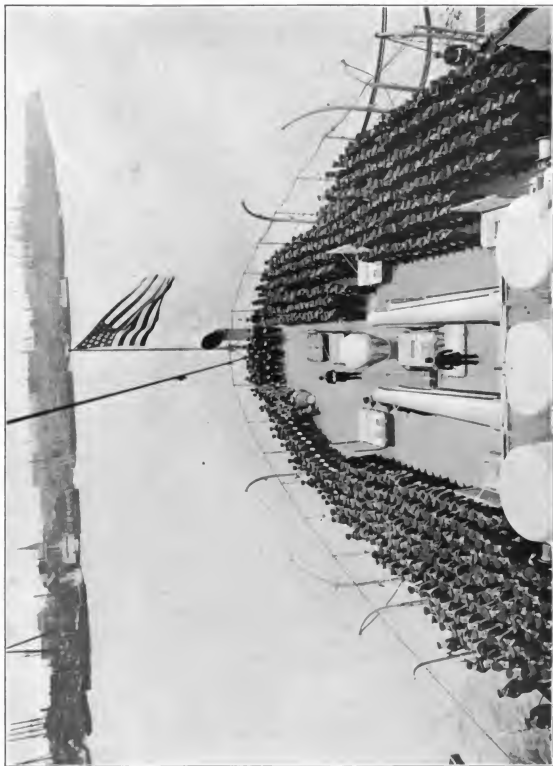
ON BOARD THE U.S.S. NEW JERSEY



I. ENLISTED MEN PLAYING



II. ENLISTED MEN RESTING



III. GENERAL MUSTER ON BOARD THE NEW JERSEY

THE INTERNATIONAL NAVAL CONFERENCE

Authorities on international law and the rules of maritime capture look forward with more than ordinary interest toward the International Naval Conference, which will be held at London next October, at the invitation of the British Government. The London gathering may prove the most important in which the principal naval powers will have participated since the conference that was held at Paris immediately after the close of the Crimean War, at the suggestion of Count Walewski, a French plenipotentiary, for the purpose of discussing rules of maritime capture, and that resulted in the adoption of the Declaration of Paris, which pledged all of the Continental Powers, except Spain, to the abolition of privateering.

Primarily the forthcoming International Naval Conference has been called for the determination of as many definite principles of maritime international law as possible, which are capable of being used for the government of the proposed International Prize Court provided for by the Second Hague Conference, in 1907. Without definite rules for its government, this prize court would undoubtedly encounter many grave difficulties; and the realization of this by Powers entertaining divergent views on such important questions as the right of capture, the abolition and definition of contraband, the maintenance of blockades, the status of private property at sea, and allied questions led to the ready acceptance by the other great maritime Powers of the invitation extended last spring by Sir Edward Grey, the British Foreign Secretary, for the forthcoming October Conference.

PERSONNEL OF THE AMERICAN DELEGATION

American interests will be represented at that gathering by Rear Admiral Charles H. Stockton, of the United States Navy, and Professor George Grafton Wilson, of Brown University. Both are eminent authorities on international and maritime law. Rear Admiral Stockton was president of the Naval War College at Newport ten years ago, and was afterward naval attaché to the American Embassy, London. He was the editor of a manual of international law based on the lectures of Dr. Snow of Harvard, and has written a text work on the laws and usages of war. Dr. Wilson, the other American delegate, has been professor of social and political science at Brown University for nearly twenty years, has written many

important text-books on international law, and is one of the most eminent authorities on naval and maritime law in this country. He has been a lecturer on international law at the Naval War College for the past eight years, as well as at Harvard University.

The commissions which the State Department has prepared for these two American representatives states that the International Naval Conference which they are to attend will be held "For the purpose of arriving at agreement as to what are the generally recognized principles of international law governing matters of prize and of formulating rules to be observed by the International Prize Court provided for by a convention signed at The Hague October 18, 1907." The commissions of the American delegates authorize them "To execute and fulfil all the duties appertaining to this commission, with full powers to negotiate, conclude, and sign *ad referendum* an agreement."

INTERNATIONAL PRIZE COURT LAW

The objectionable feature of the convention providing for the establishment of the International Prize Court is contained in the seventh article of that treaty. This article sets forth the law which is to govern the court in rendering its decisions. It provides three general rules for the government of the court. First, where the relations between the nation that is before the court as captor of the prize and the nation that is aggrieved are regulated by "treaty," the terms of the "treaty" are to govern the court. Secondly, if there is no treaty, the court is to apply the "rules of international" law. Lastly, if there is neither "treaty" nor generally recognized "rule" governing the subject, the court is to give its judgment in the case "in accordance with the general principles of justice and equity."

Where the parties in dispute before the Prize Court have an existing treaty covering certain points at issue, that tribunal would have little difficulty in applying the terms of the treaties to the case. But, when it comes to rendering a judgment in accordance with "rules of international law" and "general principles of justice and equity," the path of the court will become more difficult; for these rules differ, among various nations, on certain points, and the parties contending before the prize court

may entertain divergent notions of "justice and equity." Hence the general objection of the great maritime Powers lies principally against the last two provisions of the seventh article of the Prize Court Convention.

WHY ENGLAND CALLS THE CONFERENCE

Any great maritime Power like England would be anxious to know what rule of law would be applied by the International Prize Court if war should occur. As the Prize Court Convention now stands, this would be rather uncertain where there are no existing treaties covering a point that might be raised in a prize case. Rules of international law to be applied in the absence of treaties must be "generally recognized," according to the Prize Court Convention. Under that convention it is stipulated that national prize courts are to officiate just as in the past. One appeal is allowed from a national court to a higher court of the captor's country. Thereupon, at the expiration of two years, an appeal may be taken directly from the national court and the case transferred from the national court to the International Prize Court at The Hague. This court then becomes seized of the law and the facts involved in the case, and the decision pronounced would become final and binding upon the litigant parties. While the proposed Prize Court is chiefly a court for nations and not for individuals, yet the individual suitor, unless expressly prohibited by his country, may himself appeal and transfer the case, if his country should feel indisposed toward appearing before the bar as his representative.

SOME OF THE QUESTIONS INVOLVED

"If there is no 'treaty' governing certain points and there is a rule of international law for which England and the United States should stand, while other nations interested in the case don't stand for it, that rule could not be applied very well to those other nations," said a prominent authority on international and maritime law who is thoroughly familiar with the purpose of the forthcoming conference. "Still, if in the event of hostilities, England should bring suit against a French captor, for instance, and there was no generally recognized principle of international law between those two countries governing the issue, counsel for the English litigant would probably try to find some recognition by the French Government of a rule of international law espoused by Great Britain. The most eminent Italian jurist may, for example, entertain notions of 'justice and equity' thoroughly different

from Judge Gray's. Fundamental notions of jurisprudence are at stake. Since Great Britain is the greatest maritime Power, it naturally has the most at stake and naturally wants to know definitely just what law is to govern the judgments of the proposed Prize Court. The whole idea of the coming London Conference is to frame as many rules as possible, so that these rules of a more definite character may be applied in the decision of cases before the court.

"It is as yet impossible to tell what the delegates will do, or to forecast the outcome of the conference. The Prize Court Convention was the best thing along that line that could be gotten at The Hague without, possibly, jeopardizing the success of that gathering. It was a step in the advance of enlightened opinion among the nations. The forthcoming London Conference may go just a step further by adopting rules which, in the very nature of things, could not be gained at The Hague.

"The delegates from each participating nation will go to London next October prepared to work up their own cases. If they have any principles which they desire incorporated into international agreement, they will formulate those principles for adoption. Take, for instance, a hypothetical case of England and the United States during hostilities. The United States has for a long time sought to obtain immunity from capture at sea of all private property, not contraband of war. We have not succeeded. It was tried by the American delegation at The Hague last year. American private property in the enemy's ships might be captured, in war with Great Britain, by an English cruiser, and it might be taken before an English prize court and condemned, and the American owners of the ship and cargo would lose all they have involved in the capture. There is a rule, for instance, that a vessel summoned to stop in the theatre of war must do so. If it shouldn't stop, it might be fired upon and sunk. In that event it would be worse off than if it had run away when told to stop, and worse off than it would have been if it had perpetrated a fraud. If the vessel should be captured by an English captain who had told off so many of his men to take off certain other captured prizes into port, and he should not feel that he could spare other men from his ship to convey this other captured vessel to port, he might destroy the vessel. Whether destroyed or condemned, the vessel and cargo would be lost to the American owners. It would make little difference to them financially.

"If England and the United States, being neutrals, have never recognized the right of a belligerent to de-

stroy a neutral ship, then the claim would have to be taken before a Prize Court. The commander would not be able to say he has furnished all the prize crews he can spare, or that he would rather sink the ship than allow her to reach a hostile port.

"The American view is that the condemnation of a ship is a judicial function which cannot be performed by the commander of a cruiser; that the Prize Court must determine whether the vessel should be condemned. There are some other states that take the view that it is all right to destroy the ship at sea, provided there is reimbursement for its loss afterward. There are differences along this line. The coming London Conference may try to frame a rule of law for the government of the International Prize Court in such cases, and where there is divergence of view on this subject the delegates would try to compromise and harmonize their views into a general agreement which may serve as a rule for the government of the International Prize Court. If this could be done it alone would be a valuable result.

"The success of the proposed Conference at London will depend, of course, upon how skillfully drawn the compromises are and how many adherents from the great maritime Powers can be persuaded to support them. Whenever any proposition is drawn by any Power represented in the conference, and it is offered for adoption, it is always fair to assume that national self-interest is behind the project, and before the representatives of other nations at the conference act they will undertake to discover just how that proposition would affect their own national self-interests. On any question of prize on which there is now divergence of view among the principal maritime Powers, the delegates will make as many rules as they can for incorporation into a general international agreement, and they will go as far as they can in this direction, without jeopardizing the success of the gathering.

"While the scope of the conference cannot be predicted, there are many questions of vast importance that might be considered. There is the problem of contraband. Great Britain proposed, at The Hague Conference, to abolish absolutely the distinction of contraband of war, by proposing to allow it to go without capture at sea, and in exchange for that it was proposed by her that the rules of blockade should be made more rigorous. When the British proposal was made, there were other nations who indicated their willingness to discuss the adoption of that principle if the British delegates would state just what substitute they would offer to replace

the abolition of contraband. The United States delegation, for instance, responded that they could not accept any change in the rules of blockade and contraband then existing, because they were not satisfied with the rules which England had proposed as her substitute for the abolition of contraband.

"Great Britain would like to abolish the distinction of contraband because that Government would be confronted with the question of food supply and would like to have provisions come into the British Isles in the event of a great war in which she might be engaged. She thinks she is strong enough on the high seas with her navy to keep her own ports from being blockaded. On the other hand, France wants the existing status continued. So does Germany.

"The United States, all along, has favored the immunity of private property, non-contraband, from capture at sea, and proposed this at both of The Hague Conferences. Great Britain favors the capture of private property at sea. She believes her navy strong enough to defend her own commerce. We don't do so, on grounds of humanity. The American view at The Hague was that the private property of all citizens of the signatories, except contraband of war, should be exempt from capture or seizure.

"Whether the question of contraband is or is not considered at the London Conference, there is one matter that would probably be regarded as a serious question for this Government in the event of a war between any two great maritime Powers of Europe, and that is the failure of the United States Government to declare its adherence to the Declaration of Paris of 1856. There were four heads to that Declaration. It provided, first, for the abolition of privateering; second, that the neutral flag covers enemy's goods, except contraband; third, that neutral goods, except contraband, are not liable to capture under the enemy's flag; and, finally, that blockades must be maintained by a force sufficient really to prevent access to the coast of the enemy, in order to be binding. This Declaration was originally signed by Great Britain, Austria, France, Prussia, Russia, and Turkey. The United States adopted the second, third, and fourth propositions, independently of the first, but offered to adopt that one, too, with an amendment providing that the private property of citizens of a belligerent, on the high seas, should be exempt from seizure by the warships of belligerents except it be contraband. But as the United States did not adhere to all four of the points of the Declaration of Paris, we have never signed it. Until

last summer Spain was the only continental nation that had not adhered, and Mexico and the United States the only non-signatory Western nations. Spain and Mexico declared their adherence to the Declaration of 1856 last summer, and the United States is the only great Power that has not yet signed. We have, therefore, not abolished privateering, and have used that as a lever for negotiation; but everybody knows that the United States Government would not resort to privateering in the event of war. Not having signed the Paris Declaration, the

principle of the neutral flag covering enemy's goods and the enemy's flag covering neutral goods could not be invoked by us. Since most of our goods are shipped in foreign bottoms, it might prove a serious matter—this failure to sign the Declaration of Paris. One European maritime Power at war with another might seize a vessel flying the enemy's flag but carrying American goods, not contraband, because we have not formally adhered to that Declaration, and the consequences might prove serious enough to drag this country into the war."

THE TRAVELS OF THE FLEET

With sixteen battleships of the Atlantic Fleet, under command of Rear Admiral Charles S. Sperry, on their way around the world, following the two other battleships already on their way around, and the Pacific Fleet of eight armored cruisers en route for Hawaii and Samoa, the American Navy will at the beginning of September be exceedingly strong in the Pacific Ocean, both in numbers and as to strategic situation. It will be the strongest naval force this or any other nation has ever maneuvered on that ocean. Plans for the Samoan voyage of the eight armored cruisers have been in preparation in the Department for some months, but it was not until after the sixteen battleships had started on their voyage from San Francisco early in July that details for the cruiser voyage were completed.

The Samoan movement will be an important one, aside from the training and practice which it will afford its men. Not one of these cruisers is unpracticed. Not many months ago, six of them were brought back from Manila, by way of Yokohama and Honolulu, by Rear Admiral James H. Dayton, and the other two—the *Tennessee* and *Washington*—have only recently covered 23,665 nautical miles in their special service voyage to Bordeaux, and, after their return, on their voyage around South America. With this Samoan voyage of 9,380 nautical miles, these two armored cruisers will have covered some 33,345 nautical miles from June 14, 1907, to December 4, 1908. Surely this is a record of which any vessel may well feel proud.

Aside from the experience and team-work in squadron formation which these eight vessels of the Pacific Fleet will receive on their Samoan journey, there is the equally important question of strategic distribution of vessels of

the fleet,—an element which must always be considered in connection with the trend of international politics and national defense even in times of peace. Only a few years ago the British Government prompted its Admiralty, for both naval and political reasons, to concentrate the vessels of its first fighting line in home waters. That was because the trend of the political situation was such that the British Government deemed it wiser to assemble its heavier craft in, and to accustom them to, the Channel, the North Sea, and the waters of the Atlantic immediately adjacent to the British Isles. No announcement of the reasons for this redistribution of the fleet were given, and there was no boasting. The British Government simply did what policy and strategy prompted, and left outsiders to explain that it was precipitated by the "German menace."

There was also a period, not so very long ago, immediately following the war with Spain, when for America the defense of the Atlantic seaboard was regarded as the strategic problem of the day; and, in accordance with that view, our vessels were distributed largely in the Atlantic and a great naval dry dock was begun at Guantanamo. The mastery of the Pacific and the position of Japan are to-day the vital factors in our naval strategy and plans for national preparedness, and Pearl Harbor is the point where a great dry dock is urgently needed. The Guantanamo dock was never completed. Congress ceased appropriating funds for its continuation, after several hundred thousand dollars were spent; and, most of the time, the hole that was excavated at Guantanamo for that dock is a pond, which is occasionally pumped out, in order to protect from the teredo worm the piles which were sunk. Work ceased some time since on the Guan-

tanamo project and legislative and executive eyes are focused upon the great new naval base in the Hawaiian Islands, for which an appropriation was made at the recent session of Congress.

The sixteen battleships that are bound around the world will call at Yokohama about the middle of October, and there will be a cordial fraternization of Americans and Japanese that should be conducive to good feeling between the two countries. After that the fact will remain that America and Japan—the two Powers facing each other across a great ocean—will be the principal factors in the struggle for the mastery of the Pacific.

On their way to Australia and other ports of the Orient the sixteen battleships pass within close reach of Samoa, do not touch its shores. Under the international agreement of some years ago the United States became a factor with Germany and England in the protectorate over those islands. We have a coaling station and other interests there, and a brief visit of such a fleet as is constituted by the sixteen battleships would have a powerful influence in establishing the prestige of the American flag in Samoan waters. When the itinerary for the world-cruise was elaborated, Samoa was left out because it was the intention to send the Pacific Fleet of armored cruisers there in September.

THE VOYAGE OF THE PACIFIC FLEET

The vessels that are to make this Samoan voyage of 9,380 miles and return are as follows:—

FIRST DIVISION.

<i>West Virginia</i>	13,680 tons, 18 guns, 22.15 knots speed.
<i>Colorado</i>	13,680 tons, 18 guns, 22.24 knots speed.
<i>Maryland</i>	13,680 tons, 18 guns, 22.41 knots speed.
<i>Pennsylvania</i>	13,680 tons, 18 guns, 22.48 knots speed.

SECOND DIVISION.

<i>Tennessee</i>	14,500 tons, 20 guns, 22.16 knots speed.
<i>California</i>	13,680 tons, 18 guns, 22.20 knots speed.
<i>Washington</i>	14,500 tons, 20 guns, 22.27 knots speed.
<i>South Dakota</i>	13,680 tons, 18 guns, 22.24 knots speed.

FIRST TORPEDO FLOTILLA.

<i>Truxton</i>	433 tons destroyer, 29.58 knots speed.
<i>Hull</i>	408 tons destroyer, 28.04 knots speed.
<i>Whipple</i>	433 tons destroyer, 28.24 knots speed.
<i>Hopkins</i>	408 tons destroyer, 29.02 knots speed.

SECOND TORPEDO FLOTILLA.

<i>Perry</i>	420 tons destroyer, 28.32 knots speed.
<i>Preble</i>	420 tons destroyer, 28.03 knots speed.
<i>Stewart</i>	420 tons destroyer, 29.69 knots speed.

They will be accompanied by the torpedo supply ship *Solace*, formerly a hospital ship, and by the naval colliers *Saturn* and *Justin*,—the two latter vessels going only as far as Honolulu. While at Pago Pago, two of the armored cruisers and two destroyers will visit Apia for two days. The four vessels to make this visit will be designated by the Commander-in-Chief upon arrival at Pago Pago. The official itinerary for the cruise of these vessels has been arranged as follows:—

Leave San Francisco.....	August 24.
Arrive Honolulu.....	September 2.
Leave Honolulu.....	September 10.
Arrive Pago Pago, Samoa.....	September 20.
Leave Pago Pago, Samoa.....	September 27.
Arrive Honolulu.....	October 7.
Leave Honolulu.....	October 17.
Arrive San Diego.....	October 28.
Leave San Diego.....	October 30.
Arrive Magdalena Bay.....	November 1.
Leave Magdalena Bay.....	November 30.
Arrive San Francisco.....	December 4.

The dates of departure given above are fixed, but the dates of arrival will vary according to the ease or difficulty with which the destroyers are towed. According to this itinerary the vessels will steam to Honolulu, 2,100 nautical miles, at about ten knots. There the fleet will coal, and ten days later they will start out on their 2,240 miles journey for Samoa. From Samoa the fleet will, after a series of maneuvers later to be determined, return again to Honolulu and then go to Magdalena Bay for annual battle target practice in the fall. The run from Honolulu to Magdalena Bay is 2,800 nautical miles; and as the Bureau of Navigation believes that the smaller torpedo craft will be unable to make this long run under their own steam, the practice cruise of the cruisers towing the torpedo boats from San Francisco to San Diego last month was ordered. The plan was to ascertain the maximum speed at which the eight armored cruisers could tow the torpedo boats should the latter run out of steam between Honolulu and San Diego en route for Magdalena Bay. On the other runs of 2,100 and 2,240 miles the Department believes the torpedo craft can get along without help. On the way out to Samoa, the Pacific armored cruiser fleet will arrive at Honolulu September 2, three days before the sixteen battleships of the Atlantic fleet leave Melbourne, Australia. The cruiser fleet will be at Pago Pago while the battleship fleet is running from Australia to Manila, and the former will leave Pago Pago for the return voyage on September 27, three days before the latter arrive at Manila on October 1. The cruisers will

return to Honolulu October 7, three days before the battleships sail from Manila for Japan, and will leave Honolulu for San Diego on October 17,—the day that the sixteen battleships steam into the harbor of Yokohama. By reference to a map of the Pacific, the strategy of these movements is very apparent.

ITINERARY FOR THE BATTLESHIP VOYAGE

The sixteen battleships of the Atlantic fleet were all ready for their departure from San Francisco on the morning of July 7, with the single exception of the *Nebraska*, which was detained two days, on account of an outbreak of measles. She caught up with the other vessels, and the sixteen were together when they steamed past the leper settlement on the Island of Molokai. The ships passed near these islands in order that those unfortunates might see the fleet.

The *Nebraska* and the *Wisconsin*, both of which had been stationed on the California coast since their completion, took the places in the fleet which the *Maine* and *Alabama* had had during the voyage from Hampton Roads to San Francisco. The steaming radius of the *Maine* without recoaling is limited to 3,700 miles, and as there is a stretch of 3,850 miles after the fleet leaves Honolulu before it reaches New Zealand, it was decided to take her out of the formation of sixteen and send her on ahead, with the *Alabama*, the engines of which are reported not to have equalled those of the other battleships and might have interfered with the progress of the rest of the fleet.

The itinerary of the fleet to the Orient is as follows:—

Leave San Francisco, July 7...2,100 miles, 9 days at sea.
 Arrive Honolulu, July 16.....7 days in port.
 Leave Honolulu, July 23, 3,850 miles, 16 plus 1 day at sea.
 Arrive Auckland, Aug. 9.....6 days in port.
 Leave Auckland, Aug. 15.....1,284 miles, 5 days at sea.
 Arrive Sydney, Aug. 20.....7 days in port.
 Leave Sydney, Aug. 27.....575 miles, 3 days at sea.
 Arrive Melbourne, Aug. 29.....7 days in port.
 Leave Melbourne, Sept. 5.....1,350 miles, 6 days at sea.
 Arrive Albany, Sept. 11.....6 days in port.
 Leave Albany, Sept. 17.....3,300 miles, 14 days at sea.
 Arrive Philippines, Oct. 1.....9 days in port.
 Leave Philippines, Oct. 10.....1,750 miles, 7 days at sea.
 Arrive Yokohama, Oct. 17.....7 days in port.
 Leave Yokohama, Oct. 24.....1,343 miles, 5 days at sea.
 Arrive Amoy (second squadron), Oct. 29.....6 days in port.
 Leave Amoy, Nov. 4.....1,750 miles, 7 days at sea.
 Arrive Manila (first squadron), Oct. 31.....
666 miles, 3 days at sea.
 Arrive Manila (second squadron), Nov. 7.

JOURNEY OF THE MAINE AND ALABAMA

Leaving the other vessels of the Atlantic Fleet to follow a month later, the battleships *Maine*, Captain Giles B. Harber, and *Alabama*, Captain Ten Eyck DeW. Veeder, sailed from San Francisco June 8. Captain Giles B. Harber was in command of this special service squadron, and he had Secretary of the Interior James R. Garfield as a passenger as far as Honolulu. The *Maine* and the *Alabama* are the first two of the ships of the Atlantic Fleet that passed through the Straits of Magellan to turn homeward, and will complete the trip around the world in advance of the *Connecticut* and the other fifteen vessels. The Atlantic Fleet is due at Hampton Roads on February 22 next, and will be reviewed by President Roosevelt ten days before the close of his administration. The *Maine* and *Alabama* are due to return to Hampton Roads on October 22 next.

The itinerary is as follows:—

Leave San Francisco, June 8.
 Arrive Honolulu, June 17; leave June 23; 6 days in port.
 Arrive Guam, July 7; leave July 14; 7 days in port.
 Arrive Manila, July 21; leave July 28; 7 days in port.
 Arrive Singapore, Aug. 3; leave Aug. 7; 4 days in port.
 Arrive Colombo, Aug. 14; leave Aug. 18; 4 days in port.
 Arrive Aden, Aug. 27; leave Aug. 30; 3 days in port.
 Arrive Suez, Sept. 5; leave Sept. 6; 1 day in port.
 Arrive Ismailia, Sept. 6; leave Sept. 10; 4 days in port.
 Arrive Naples, Sept. 16; leave Sept. 26; 10 days in port.
 Arrive Gibraltar, Sept. 30; leave Oct. 4; 4 days in port.
 Arrive Horta, Oct. 9; leave Oct. 12; 3 days in port.
 Arrive Hampton Roads, Oct. 22.

CHANGES IN COMMANDS

With the hauling down of the flags of Rear Admirals Evans and Thomas and other changes in personnel, there had to be a rearrangement in the commands of some of the vessels. Rear Admiral Sperry succeeded Rear Admiral Evans as Commander-in-Chief; and, with the hauling down of the flag of Rear Admiral Charles H. Thomas,—who, like Rear Admiral Evans, was scheduled to retire before the fleet could reach Manila,—Rear Admiral W. H. Emory became the second ranking officer of the fleet, taking command of the third division. Rear Admiral Richard Wainwright, who had been in command of the *Louisiana*, was placed over the second division; and Rear Admiral Seaton Schroeder, who had command of the *Virginia*, was assigned to the command of the fourth division. Captain Kossuth Niles was placed in command of the *Louisiana*, and Captain Alexander

Sharp in command of the *Virginia*. The voluntary retirement of Captain Charles W. Bartlett made way for the transfer of his command of the *Ohio* to Captain Thomas B. Howard; while the voluntary retirement of Captain Henry Morrell brought a new commander to the *Wisconsin* in the person of Captain F. E. Beatty. Captain Henry McCrea, who had taken the *Georgia* around through the Straits of Magellan, was relieved of his command on account of ill-health, and Captain E. F. Qualtrough was given his command. Shortly afterward, Captain McCrea died suddenly in the naval hospital at Brooklyn; while Rear Admiral Charles M. Thomas died suddenly in California, making two deaths of prominent officers who had aided in making the voyage around South America a success. The only other change in the commands was the substitution of Captain R. M. Doyle for Captain G. A. Merriam in command of the *Missouri*. Otherwise the vessels have the same commanders that took them around South America, the composition of the fleet as it now stands being as follows:—

Comander-in-Chief — Rear Admiral Charles S. Sperry.

First Division, Rear Admiral Charles S. Sperry, commanding: *Connecticut*, flagship, Captain Hugo Osterhaus; *Kansas*, Captain Charles E. Vreeland; *Vermont*, Captain W. P. Potter; *Minnesota*, Captain John Hubbard.

Second Division, Rear Admiral Richard Wainwright, commanding: *Georgia*, flagship, Captain E. F. Qualtrough; *Nebraska*, Captain Reginald F. Nicholson; *New Jersey*, Captain W. H. H. Southerland; *Rhode Island*, Captain J. B. Murdock.

Third Division, Rear Admiral W. H. Emory, commanding: *Louisiana*, flagship, Captain Kossuth Niles; *Virginia*, Captain Alexander Sharp; *Ohio*, Captain T. B. Howard; *Missouri*, Captain R. M. Doyle.

Fourth Division, Rear Admiral Seaton Schroeder, commanding: *Wisconsin*, flagship, Captain F. E. Beatty; *Illinois*, Captain John M. Bowyer; *Kearsarge*, Captain H. Hutchins; *Kentucky*, Captain Walter C. Cowles.

Auxiliaries: *Culgoa*, Lieutenant J. B. Patton; *Glacier*, Commander W. S. Hogg; *Panther*, Commander V. S. Nelson; *Yankton*, Lieutenant Commander C. B. McVay; *Relief* (hospital ship), Surgeon C. F. Stokes.

THE TORPEDO ATTACK ON THE *FLORIDA*

Among the ultimate teachings of the Russo-Japanese war, none will be more important than its demonstration of the necessity of affording battleships and armored cruisers adequate protection from the explosive effect of the torpedo. This, coupled with the marvelous development of the modern locomotive torpedo since the conclusion of hostilities in the Far East, has deeply interested the world's admiralties in the development of internal ship armor as a special safeguard against this dangerous weapon.

It was with this idea firmly in mind that the Navy Department followed up its first gun-attack of May 27, upon the port plate of the monitor *Florida's* forward turret and upon the new type of military mast, with a second experiment several weeks later in the nature of a torpedo attack upon the same vessel. Accordingly, the *Florida*, which had been undergoing repairs at the Norfolk Navy Yard since the end of May, was on the morning of Saturday, June 13, given a scientific blow from a heavily charged, modern Whitehead torpedo, off Sewell's Point,

at a point on the eastern edge of Hampton Roads, about five miles north of Norfolk, Virginia.

The torpedo was charged with about 220 pounds of gun-cotton, and exploded with terrific detonation, tearing a large hole in the hull of the monitor, causing the vessel to reel, and lifting a great column of water some two hundred feet into the air. Steel fragments torn from the side of the *Florida*, accompanied by water and coal dust, were hurled within a radius of almost half a mile; but the internal armor, which had been specially constructed within the hull of the ship with the intention of forming a new style of bulkhead and taking up the expansive gaseous forces, afforded excellent protection, and the use of extra auxiliary pumping apparatus kept the monitor afloat and she was able, under tow, to reach the navy yard at Norfolk immediately after the experiment.

Like the British battleship *Hero*, which was subjected to terrific gunfire from the Channel Fleet off Kentish Knock on the coast of England some months ago, the

experiment with the *Florida* was intended as a contribution to the altar of science. The *Hero* was so badly battered that she became a hopeless wreck and has been stricken entirely from the Royal Navy list; but the *Florida* was not sacrificed, though, if she had been, the Government and the nation would be amply repaid through the lessons taught by that experiment. Already the gun-attack of May 27 has resulted in the decision to place the new type of military masts upon all of our armored vessels when they reach their home ports for repairs; and the torpedo-attack of June 13 will leave its impress upon American naval construction and armor-protection.

INTERNAL ARMOR PROTECTION

Among ships commissioned and serving actively in the British Navy, the *Dreadnought* and the cruiser battleship *Invincible* are the latest developments of naval science abroad. In both of these vessels considerable attention has been given to protection from explosives acting below the water-line; and, according to Commander Murray F. Suter of the British Navy in his recent valuable work on the evolution of the submarine boat, the mine and the torpedo provision has been made in both the *Dreadnought* and the *Invincible* for better cellular protection, solid bulkheads where possible, and internal armor-protection below the water-line. The few attempts that have previously been made in the matter of torpedo protection have been the crude torpedo bulkheads, such as were fitted in the Russian battleship *Cesarevitch*, and similar protection in several French battleships.

The idea of armorizing the outside hull of warships below the water-line as a protection has had advocates both at home and abroad; and the French in their *Belle Isle* experiments, sought results by exploding gun-cotton charges against submerged armor plates. Corrugated cellulose has been placed behind armor plates; and it has also been contended that coal in bunkers would stop explosions. Hanging nets are used in the British Navy and are being experimented with in our own off the New England coast; but nets are looked upon by many as of little use for vessels under way. The tendency leading up to the torpedo-attack upon the *Florida* has been rather in the direction of securing a counteracting force within the hull that would overcome or reduce the force of a submarine explosion in contact with the outer skin of the vessel.

Internal armor protection very similar to that used in the *Florida* test was adopted for the *South Carolina* and *Michigan* and our later type of new battleships, and the

results of the experiment of June 13 are declared to be corroborative of the decision to install such protection in these new craft, rather than pointing the way toward something not previously adopted. Departmental officials and officers are more than gratified over the outcome of the test, which they regard as successful. Several hundred naval and army officers witnessed the experiment and none were more interested spectators than Secretary of the Navy Metcalf and Secretary of War Taft, who steamed down the Potomac River in the *Mayflower* for the event.

THE PRELIMINARIES

Preparations for the test had been well worked out under the direction of Rear Admiral Newton E. Mason, Chief of the Bureau of Ordnance of the Navy, and Chief Constructor Washington Lee Capps. There was not the slightest hitch in the execution of these plans. The experiment was tried almost directly opposite Pine Beach, near the Jamestown Exposition Grounds, where the monitor was anchored over a shoal, in about fifteen feet of water. The vessel has a mean designed draft of 12 feet 6 inches, displaces normally 3,225 tons, is 252 feet long between perpendiculars, and 50 feet beam. The water-line belt amidships is 11 inches thick at the top, 5 at the bottom, and 8 along the water-line. The *Florida* was anchored fore and aft, with her bearings south by west, and, with a draft of about thirteen feet at the time of the experiment, was about two feet free in the shoal water. She was within three hundred yards of the Pine Beach pier, to the south of the Exposition Grounds, half a mile east of the main channel from Norfolk to the sea, at the mouth of the Elizabeth River, between Sewell's Point and Craney Island. The monitor left the Norfolk Navy Yard June 11, arriving there the same day, and was anchored the following day in the proper position, so that when officials arrived from Washington the morning of June 13 all was in readiness for the attack.

The hour of 8 o'clock in the morning was chosen for the experiment, in order to take advantage of high tide and to tow the ship off the shoals before low water. In anticipation of the ship possibly settling to the bottom, the small margin of water was allowed under her keel in order to minimize the cost of raising her. With the party of Secretaries Metcalf and Taft, which arrived at 6 o'clock in the morning, were Postmaster General Meyer, Brigadier General Clarence R. Edwards, chief of the Bureau of Insular Affairs; Lieutenant Colonel Charles L. McCawley of the Marine Corps, and Lieutenant Com-

mander Cleland Davis, assistant chief of equipment and torpedo expert. Commander Edward Simpson was their aid. The party of Rear Admiral Mason and Chief Constructor Capps, which arrived from Washington at the same hour, comprised Naval Constructor George H. Rock; Commander Washington I. Chambers, assistant to the Bureau of Ordnance; Commander Frank F. Fletcher, who is on duty with the General Board of the Navy; Commander William S. Smith; Lieutenant John R. Brady; Lieutenant Commander Thomas J. Senn, of the Bureau of Ordnance; Brigadier General Arthur Murray, Chief of Artillery of the Army; and Colonel John B. Porter.

Four hundred feet from the starboard side of the *Florida* floated a barge from which the torpedo was fired. This torpedo came from the torpedo boat *Morris*, which was moored alongside the barge, and the course of the torpedo was immediately below a half-inch trolley wire drawn taut and passing through two eyelets on the torpedo. One end of the trolley was fastened to the *Florida* amidships, about seven feet under water. The other end was made fast to the firing barge. The object of the trolley was to guide the torpedo to the precise spot where the hole was to be made in the side of the monitor. Slightly back of the *Florida's* turret, two big torpedo nets were suspended from cranes, to prevent the torpedo going astray in case of an unsuccessful launching and to protect other sections of the monitor from fragments.

OFFICERS PRESENT

Admiral Mason and party were put aboard the *Florida* at 8 o'clock, to inspect the arrangements for the test; and at 8.10 o'clock the red flag was posted indicating that all was ready. Captain John G. Quinby, commander of the monitor, announced that he and his men were to remain aboard the *Florida*, as they had done during the previous test of May 27, when the turret and military mast had been fired upon by the *Arkansas*. Rear Admiral Mason and Chief Constructor Capps and several dozen other officers also decided to remain aboard the monitor. Launches and rowboats were brought along the port side for use in emergency, but none had to be used. All of the officers went into the after-deck cabin. These were Captain Quinby, ship's commander; Lieutenant Joseph K. Taussig, turret officer of the *Florida*, who was below his turret on May 27 when it was struck by the 12-inch shell; Boatswain Allen T. Webb, and Warrant Machinist John R. Burkhart,—these four making

the *Florida's* complete official roster. The *Florida's* crew, which was but temporary, consisted of twenty-seven men, all of whom were under the after superstructure. The other officers on the monitor at the time of the torpedo impact were Rear Admiral Mason, Chief Constructor Capps, Commanders Chambers, Smith, and Diffenbach, Lieutenant Brady, and Naval Constructor William McEntee. These men were all commended for their courage.

The officers on the firing barge from which the torpedo was launched were Lieutenant Commander George W. Williams, one of the best torpedo experts of the Bureau of Ordnance; Lieutenant William S. Miller, inspector of ordnance at the Bliss-Leavitt Torpedo Works; Lieutenant Commander Thomas J. Senn, of the Bureau of Ordnance, assistant in charge of the Newport Torpedo Station; Lieutenant John V. Babcock, who had charge of the firing; and Chief Gunner's Mate Charles Baldwin, who pulled the trigger. While the officers and men on the *Florida* were under shelter, all of them could see the torpedo fired and observe its spiral-like course, with speed increasing from 15 to 28 knots as it struck the ship. The officials on the barge were in an old Spanish conning tower, but they were spattered with muddy water and blackened with coal from the *Florida's* hold. Fragments whirled all about them during the explosion, many striking the barge, and a piece of steel water sheath weighing several pounds crashed upon the tower's turret, without, however, breaking through.

The party which had worked out the test, headed by Rear Admiral Mason and Chief Constructor Capps, proceeded to the practice ship *Montgomery*, lying off Old Point, in Hampton Roads, under command of Captain Edward Simpson, before going aboard the monitor. The three Cabinet officials and their party were transferred to the naval tug *Wahnetta*, from which they observed the test, while Brigadier General Murray and Major Davis, president of the Artillery Board at Fort Monroe, with other representatives of the army, were aboard the torpedo planter *Ringgold*, which, being low of draft, took position close in by the *Florida*, while the tugs which brought observers, the *Wahnetta* and the *Mohawk*, serving as press boat, crept in on the *Florida's* starboard bow.

THE TORPEDO ATTACK

The torpedo was fired at 8.22 o'clock, and at 11.45 o'clock the *Florida* was under way, limping to her safety berth in the navy yard, towed by three big naval tugs. Exploding successfully as it struck, the torpedo tore a gash, somewhat egg-shaped, four to six feet high and six

to eight feet long, in the outer hull of the ship. This opening graduated into a long fissure extending forward as far as the powder magazine. Such an injury would sink almost any ship afloat in the world to-day, and would have sunk the *Florida* at once but for the invulnerability of the new internal armor and bulkhead and the powerful pumps aboard the craft. That the *Florida* survived is attributed wholly to American naval genius and the success of the specially constructed bulkhead. Special armored plates were constructed on each side of the monitor, a certain distance within the hull, and two different devices were tried for keeping the water out and preventing extreme damage. As to the details of these devices and of the internal torpedo-armor protection, the Navy Department declined to furnish particulars. It is known that the internal plates were thinner on the starboard side, which was used in the test, than they were on the other side of the vessel; but the heavier armor was not tested in the experiment, and only one of the three heavily loaded torpedoes was sufficient to demonstrate the success of the project.

When the torpedo struck amidships of the starboard side of the monitor in the coal bunkers, there was an explosion, accompanied by the roar of concerted turret action, followed by a volcano of fragments of steel, wood, coal, water, and mud, caving in the hull and quickly filling the compartment with water. Tons of water went up in a tree-shaped column several hundred feet above the point of contact and fell spattering upon the decks. After the cloud had cleared, the monitor was quivering fore and aft under the tremendous blow; and when the officers and men rushed from cabin and superstructure to examine the damaged portions of the vessel, the craft showed a perceptible list to starboard amounting to seventeen inches. But her freeboard was clear of the water about two feet, and she was nearly two feet from the ground on the bar over which she had been purposely anchored.

With a torrent of water rushing in, orders were given for the immediate resort to the pumps, and the specially prepared centrifugal emergency pumps were brought into quick action, while a collision mat was thrown over the side of the vessel to stop the inrush. While the wreckage was vast, it was not more than was anticipated by the officers who had planned the test and the use of so powerful a charge as 229 pounds of gun-cotton.

Secretaries Taft and Metcalf were among the first to board the monitor after Captain Quinby had signalled "Ship floats and is safe." They went aboard in a launch from the *Wahnetta*, and were taken below into the engine and boiler rooms and shown the inside damage caused by the explosion, after the use of the mat and the working of the powerful pumps had kept the craft afloat. On account of the specially arranged compartment between the boiler and dynamo rooms, the boiler and engine room were left dry and unharmed. All the machinery and steam pipes, which were under normal pressure, were intact, and the experiment was declared to be a success. Secretary Taft, who, although at the head of the Army, had taken a deep interest in the Navy ever since his entry into official service, was highly pleased with the test, but said he expected to find the ship blown to pieces after the deafening roar of the thrilling spectacle. Secretary Metcalf was not less surprised when he ascertained the result of the test, and he and Secretary Taft offered immediate congratulations.

THE RETURN TO NORFOLK

In tow of the naval tugs, the *Florida* reached her dock at the Norfolk Navy Yard at 2 o'clock in the afternoon, and an hour later she was docked and ready for close inspection. Secretaries Taft and Metcalf and other observers went into the compartments and were pleased with the success of the venture. It was then discovered that the torpedo, which had been loaded with one of the largest charges of gun-cotton ever placed within such a weapon, had torn a hole in the side of the monitor large enough for a ship's launch to enter. While emergency pumps did their share of the work in keeping the vessel afloat, officers say that they did not prevent the ship's sinking,—the use of the protection against torpedo attack being given full credit for the safeguarding of the vessel after the attack. While opinions may differ as to whether the *Florida* would have been sunk under full steam in an open sea and without special preparations, those in charge of the experiment assert that she would not have been lost if the attack had been made in deep water. The size of the charge of gun-cotton may be better appreciated, perhaps, when it is known that the offensive buoyant mine usually contains not more than 500 pounds of gun-cotton or other high explosive.

SERVICE ITEMS

WORK OF THE ELIMINATION BOARD

Under the provisions of the eighth section of the Navy Personnel Act of March 3, 1899,—which requires the creation of a certain number of vacancies in the line of the Navy annually in order to prevent stagnation in promotion and maintain the tone of the service,—an Elimination Board for the year 1908 was appointed on May 18, by Secretary of the Navy Metcalf, to select officers between the grade of captain and lieutenant for compulsory retirement, in order to provide for fourteen vacancies between those grades. The Elimination Board for this year was composed exclusively of rear-admirals and had as its senior member and president Rear Admiral Eugene H. C. Leutze, commandant of the Washington Navy Yard. Its other members were Rear Admirals Caspar F. Goodrich, commandant of the New York Navy Yard; Albert R. Couden, president of the Naval Examining and Retiring Boards; Richardson Clover, president of the Board of Inspection and Survey; and Edward D. Tausig, commandant of the Norfolk Navy Yard. The Board held its first meeting at the Navy Department June 1, and met almost daily after that date; but it was not until July 1 that it became known that applications for voluntary retirement in the Navy were of sufficient number—fourteen in all—to make it unnecessary for the weeding-out board to exercise its function. Information was not given out respecting the number of applicants for such voluntary retirement until July 1, the day upon which formal announcement of the approval by the President of fourteen applications was made public by the Bureau of Navigation.

Under the Personnel Act there must be a certain average number of retirements, above the grade of junior lieutenant, annually, in order to make way for promotions. Unless there are enough such retirements at the end of the fiscal year—June 30—to cause the stipulated number of vacancies, a board of five rear-admirals must, under the law, recommend for compulsory retirement enough officers to bring the number of vacancies up to the required total. Fourteen vacancies had to be created, under the law, at the end of the fiscal year closing June 30 last, and that many officers would have been compulsorily retired if there had not been enough applications to complete the necessary list.

Fortunately sixteen such applications were received, and as this was two more than necessary, there was no duty for the Elimination Board to perform. The Board was formally dissolved on July 1, when announcement was made that the President had approved the application of the following fourteen officers for voluntary retirement:—

Captain Charles P. Perkins, native of New Hampshire, 60 years old, entered Naval Academy July, 1865; assistant to the commander of the Pacific Naval District at San Francisco.

Captain Theodor Porter, of the famous naval family of Porters, a son of the late Admiral Porter and grandson of Commodore Porter, native of the District of Columbia; 59 years old; entered service in September, 1865; had been attached to the Naval Home at Philadelphia.

Captain George L. Dyer, native of Maine; 59 years old; entered Academy July, 1866; had been in command of the Charleston Navy Yard since April, 1906.

Captain Charles W. Bartlett, native of Ohio; age 58; entered Naval Academy June, 1867, from Massachusetts; commanded the battleship *Ohio* on her recent voyage to the Pacific, but was relieved from her command a week before his retirement.

Captain Henry Morrell, native of New York; age 55; entered Academy June, 1869, and was the commander of the battleship *Wisconsin*.

Captain John M. Robinson, native of New York; age 57; entered service June, 1869; had been in command of the *Independence* at Mare Island Navy Yard.

Captain Robert G. Denig, engineer officer, native of Ohio; age 57; entered service in 1871; had been on inspection duty at works of Midvale Steel Company, Pennsylvania.

Captain George H. Peters, native of Pennsylvania; age 54; entered service in June, 1870; had been captain of the Boston Navy Yard.

Captain William C. Eaton, engineer officer, native of New York; age 57; entered service October, 1872; had been inspector of engineering material for eastern New York and New Jersey, with headquarters at Brooklyn.

Commander Horace W. Harrison, native of Massachusetts; age 53 years; entered service September, 1872; was the commander of the *Wolverine* on the Great Lakes; was on the *Oregon* during the Spanish War.

Commander Percival J. Werlich, native of Wisconsin; entered service in June, 1873; had been lighthouse inspector at Portland, Oregon.

Commander John L. Gow, native of Pennsylvania; entered service in October, 1874; former inspector on

duty with the Bureau of Steam Engineering; on account of heart trouble, had been an inmate at the Naval Hospital, Boston.

Commander Harry Hall, native of Pennsylvania; entered service in 1876; had been on inspection duty with Steam Engineering, but was on waiting orders.

Commander James G. Doyle, native of Pennsylvania; entered service in June, 1877; had been the executive officer of the armored cruiser *Washington*; served on the *Brooklyn* under Rear Admiral W. S. Schley in the Spanish War.

These fourteen officers accordingly were transferred from the active to the retired list, their retirements dating from June 30. Lieutenant Commanders Cook and Reed applied for voluntary retirement, but were not retired, as the fourteen retired was enough to comply with the law and stimulate promotion.

Announcement was also made that as a result of these changes, Captain T. B. Howard would be transferred from the armored cruiser *Tennessee* to command the *Ohio*, in place of Captain Bartlett, who is now on the retired list; and that Captain Bradley A. Fiske would be transferred from the League Island yard to command the armored cruiser *Tennessee*. Captain Fiske was slated to command the *Illinois* on her voyage to the Pacific coast, but was unable to accept that assignment on account of serious illness in his family, and Captain John M. Bowyer, now in command of that vessel, was sent in his stead. Captain Henry Morrell, another officer receiving voluntary retirement, had commanded the battleship *Wisconsin*, which was on the Pacific coast ready to sail around the world with the Atlantic Fleet, and his transfer to the retired list necessitated relinquishing that command. It was turned over to Captain Frank E. Beatty, who was in command of the *Charleston*.

The eighth section of the law provides that those placed on the retired list under voluntary application shall receive on the retired list the rank and three-quarters of the pay of the next higher grade, including the grade of "Commodore," which was abolished after the war with Spain and is now only re-created for the officers placed on the retired list under the law. Therefore the nine captains were retired with the rank of commodore, and the five retiring commanders as captains. The position of commodore no longer exists for active officers, the office being represented by that of rear admiral of the second nine, as it is called, to distinguish it from the position of the nine senior rear admirals.

The Personnel Law stipulates that there must be not less than forty vacancies created during the year above

the grade of junior grade lieutenant. During the year there had been twenty-six deaths and retirements, and the vacancies which they caused, combined with the fourteen additional vacancies created by voluntary retirement during the year, make way for the required advancement of lieutenants of the junior grade.

THE SOUTH CAROLINA LAUNCHED

The new first-class battleship *South Carolina*, sister-ship of the *Michigan*, was launched in the presence of an immense throng, at Cramp's shipyard, Philadelphia, on July 11, and after the tugs had warped the huge hull into the dock the invited guests went into the mold loft of the establishment, where luncheon was served. The *South Carolina's* sister—the *Michigan*—was launched May 26 last at the yard of the New York Shipbuilding Company, at Camden, New Jersey, just across the Delaware River from Philadelphia. At the launching of the *South Carolina* she was 51.9 per cent completed, while the *Michigan* was a little farther advanced with 57.2 per cent of completion to her credit on July 1 last.

While the normal displacement of each vessel is about equal to that of the *Connecticut* class,—about 16,000 tons,—the *Michigan* class belongs to the all-big-gun type of vessel, since each ship is to be armed with a main battery of eight 12-inch guns, mounted in four turrets, and so arranged that every gun will be able to fire two shots a minute. These weapons will have wide training arcs and will be able to fire on either broadside. Their broadside fire is to aggregate sixteen projectiles, each weighing 850 pounds, every minute. The *South Carolina* will have a battery of about thirty 3-inch and smaller guns, to afford protection against torpedo-boat attack and destroyer flotillas. She will also carry an armament of submerged torpedo tubes. On July 1 the Bureau of Ordnance was notified that one 21-inch, 5-metre, submerged torpedo tube had been shipped to the Cramp's yard for installation in the vessel just launched.

The *South Carolina* was christened by Miss Frederica Calvert Ansel, daughter of Governor M. F. Ansel of South Carolina, who was present with his staff and a score of prominent residents of the state to witness the launching of the new battleship. The vessel has a water-line length of 450 feet, 80 feet beam, and her mean draft will be 24 feet 6 inches. The reciprocating engines are to have 17,000 indicated horse-power and should develop 18½ knots speed. The ship is heavily armored, like the *Michigan*, which was described in detail in our

June issue. Both of these ships are to be equipped with the new spiral-cage military masts, similar to those recently tested on the old monitor *Florida* (now the *Tallahassee*). The contract price for the *South Carolina* was \$3,540,000, exclusive of armor and armament. Including armor and armament, the vessel will cost about \$7,000,000, and will be turned over to the Government on December 21, 1909.

A NEW NAVAL TUG

The large new naval tug *Patuxent* was successfully launched at the Norfolk Navy Yard on the morning of May 16 last, with Miss Lucy Quinby, daughter of Captain John G. Quinby, commandant of the Navy Yard, serving as her sponsor. The tug was launched sideways, and was the first to be glided down the ways in this manner at that yard. She is being built of steel; has twin screws, and is a sister of the *Patapsco*, which is under construction at the Portsmouth (N. H.) Navy Yard, each vessel being about three-quarters completed. They measure 148 feet in length between perpendiculars, have 29 feet breadth, 775 tons displacement, 12 feet 3 inches draft, 316 tons coal capacity, and are larger than any of the other tugs of the service. Each is to have two pole masts. The estimated indicated horse-power of 1,160 is to furnish 13 knots speed. Congress authorized these vessels April 27, 1904, and limited the cost to \$750,000 for each. The keel of the *Patapsco* was laid down May 12, 1907, and that of the *Patuxent* on July 25, 1907. A year's steady work has almost completed them.

TUBULAR MASTS FOR ARMORED SHIPS

One of the first outgrowths of the recent attack upon the monitor *Florida*, which has now had her name changed to the *Tallahassee*, is the approval by officers in the Department of a new style of military mast, which was given a practical test in the Hampton Roads experiment of several months ago. So successful has this new type of mast been declared that its adoption has been recommended for all our modern battleships and armored cruisers. This style of mast, which in the *Florida* test withstood five shots from the guns of the *Arkansas*, is to be erected on the new battleships *Idaho* and *Mississippi*, at the League Island Navy Yard.

The masts will be 90 feet high from the deck and 120 feet from the water. At the base they will be 26 feet square, tapering to 10 feet square at the top, which will

be fitted with a platform for the fire-control officer. This style of mast is an innovation. It is constructed of spiral steel tubes which encircle the structure from top to bottom in such a manner that practically all of the tubes have to be cut in the same plane before the mast will topple under its own weight. The tubes and the steel bands which encircle them horizontally are arranged so that the general effect of the mast is that of a wicker-work truncated cone, having diamond-shaped openings through which 5-inch shells may easily pass. Such a shell did pass through one of these openings, during the first bombardment of the *Florida*, and dropped into the bay beyond the monitor.

THE NEW ATLANTIC SQUADRON

Consideration is being given by the Bureau of Navigation to the formation of at least one new squadron, and probably two, for the Atlantic Ocean. The component units will nearly all be vessels which have recently been completed and placed in commission. No authentic information is yet forthcoming respecting the composition of this fleet. Neither is there any announcement ready to be made; but it has been definitely decided that Rear Admiral Conway H. Arnold is to command the new squadron, which will probably embrace the battleships *New Hampshire*, *Idaho*, and *Mississippi*, and that he will probably be sent across the Atlantic Ocean to meet the Atlantic battleship fleet after it passes Gibraltar next February.

Various suggestions have been made as to the units for this new squadron, which some think might be enlarged, pending the return of the battleships, so as to take in the new armored cruisers *North Carolina* and *Montana* and the new scout cruisers *Salem*, *Birmingham*, and *Chester*. The chief difficulty about the formation of either squadron or fleet is that most of these newer vessels are of different sizes and types and could not well be handled successfully in squadron or division formation. The *New Hampshire* is the largest of them all. She was delivered to the Government at the League Island Navy Yard on March 14 last, is of 16,000 tons displacement, and belongs to the *Connecticut* class. Her displacement exceeds by several thousand tons that of the *Idaho*, which was delivered to the Government by the Cramp's on March 26 last, and her 13,000-ton sister-ship, the *Mississippi*, which was handed over to the Government by the Cramp's on January 22 last. The *Montana*, delivered to the Government at Norfolk on April 27, and

the *North Carolina*, delivered at the same place on July 10, are sisters of the armored cruiser type of the *Tennessee* and *Washington*, each displacing 14,500 tons. Their designed speed is 22 knots, while that of the *Idaho* class is 17 knots, as against a designed speed of 18 knots for the *New Hampshire*. The scouts are swifter vessels of 3,750 tons displacement, designed for 24 knots speed,—a speed which they have each exceeded on their trials. The decision of the Department respecting the formation of the proposed new squadron will probably be announced within the next two months.

THE TENNESSEE ACCIDENT

The report of the Board of Investigation convened by order of the Commander-in-Chief of the Pacific Fleet, Rear Admiral James H. Dayton, on the accident which occurred in the boiler room of the armored cruiser *Tennessee* on June 5, after she had left Santa Barbara, on the coast of Southern California, en route for Los Angeles ports, has been received by the Navy Department. This report says that "the accident consisted of the bursting of a 4-inch tube on the bottom, fourth row from inboard, making a hole $7\frac{3}{4}$ inches by $5\frac{1}{2}$ inches, approximately, in the tube, about twenty-two inches from the back of Boiler G." Continuing, the report says that "the adjacent tubes on each side were bulged," and that "the inboard upper soot door was blown off and landed on the floor plates, thus admitting escaping steam from the ruptured tube, which filled the fire room with live steam." Five lives were lost in this accident.

The Board finds that the accident was in no respect due to fault or neglect on the part of any of the officers or men of the vessel; that the boiler was clean and apparently in good condition; that the water was carried at the proper level; and that the ruptured tube showed no signs of overheating. A memorandum issued, in connection with the receipt of the Board's report, by the Bureau of Navigation, says, in part:—

"The Board cannot advance any theories as to the probable cause of the accident and can give no reason for the bursting of the tube. The upper inboard soot door of Boiler G was blown off because the dogs of this door were not properly engaged in their sockets in the boiler casing, and F. C. Friebe, Chief Water Tender, and A. T. Loundes, Water Tender, U. S. Navy, were careless in not seeing that the dogs in this door were properly engaged before securing them. The loss of life would not have been so great had this soot door remained in place,

for most of the steam would have then escaped up the smoke-pipe, the soot door being a device to provide for this passage of the steam when pressure rises in the ash-pit. The Board has no adverse criticism to make on the conduct of officers or men at the time of the accident, but, on the contrary, is of the opinion that the discipline was excellent, and that the spirit shown on this occasion is worthy of high commendation. The Commander-in-Chief of the Pacific Fleet reports that a General Court-Martial has been ordered for the trial of F. C. Friebe, Chief Water Tender, and A. T. Loundes, Water Tender, who were found by the Board to be responsible for not seeing the dogs of this soot door properly engaged before securing them."

When news of the accident first reached the Department early in June, it was suggested that it might have been due to failure to keep the tubes free from mud. This belief does not seem to have been corroborated by the Board of Investigation. It was also believed to have been somewhat similar to the accident which occurred to the protected cruiser *St. Louis* last February. The Board of Investigation in that case reported that it could not have been avoided, and that a like accident was apt to occur on almost any ship. The commanding officer of the *St. Louis*, its officers, and men were exonerated of all responsibility for the accident. The worst accident of the kind in the Navy was a boiler explosion on the gunboat *Bennington* near San Diego, California, on July 21, 1905. Sixty-six officers and men were killed, and the ship's captain was reduced several numbers in grade because those in charge of the boiler and engine rooms were held to have been negligent.

NO "HEAT AND LIGHT" CLAUSE

Secretary Metcalf will next winter renew his recommendation to Congress in the matter of "heat and light." All that is needed to place the navy on the army basis is the insertion of three little words in the Navy Appropriation Act. It can be easily accomplished by inserting the phrase "heat and light" in an item coming under the heading "Pay of the Navy," appropriating for commutation of quarters for officers, on shore not occupying quarters, and would affect boatswains, gunners, carpenters, sail-makers, warrant machinists, pharmacists, and mates, as well as naval constructors and assistant naval constructors.

No reason exists why this provision should not have long ago been made, so as to allow this heat and light at Government expense for the authorized allowance of

quarters for these officers, since it would have then placed them on an equal footing—respecting heat and light—with those officers whose compensation is based on that of the army. The last Army Appropriation Act provides that "Hereafter the heat and light actually necessary for the authorized allowance of quarters for officers and enlisted men shall be furnished at the expense of the United States, under such regulations as the Secretary of War may prescribe." Secretary Metcalf is of the opinion that those officers of the navy whose allowances are assimilated to the allowances of the army are also entitled to the benefit of this provision. Certain grades of naval officers whose allowances are not so assimilated are, by special legislation, allowed commutation of quarters. The Naval Appropriation Act of 1901 provided that officers ashore,—including boatswains, gunners, carpenters, sailmakers, warrant machinists, pharmacists and mates,—not occupying public quarters, should thereafter receive the same commutation for quarters as second lieutenants of the Marine Corps.

The Naval Appropriation Act of 1903 makes provision for the officers just mentioned, and also for naval constructors and assistant naval constructors. The provision is contained in the Naval Appropriation Act for each succeeding year. Officers of the Civil Engineer Corps and professors of mathematics also receive commutation of quarters, by virtue of a clause in the Naval Act of 1906; but it has been held by the Comptroller of the Treasury that the allowance of heat and light given by the Army Act of March 2, 1907, is an allowance separate and distinct from commutation of quarters, and that a grant of the latter conveys no right to the former. Officers of the Construction and Civil Engineer Corps, professors of mathematics, warrant officers, and mates, although allowed commutation of quarters, are not furnished heat and light at Government expense along with their authorized allowance of quarters; and, in spite of the appeal of Secretary Metcalf, Congress allowed the session to pass without placing the navy on the same footing as the army with respect to "heat and light."

NO LEGISLATION FOR CHAPLAINS

Three measures were introduced in the House of Representatives during the past session relative to the status and number of the chaplains in the naval service. Representative Fitzgerald of New York proposed to increase the number of chaplains; and Representative Bates of Pennsylvania, a member of the Naval Committee, offered two bills to fix the number, status, and pay of naval

chaplains. None of these bills was reported, and Congress made no change in the law respecting the chaplains.

When Chairman Foss asked for an expression of views and recommendations respecting the merits of the Bates bills, Secretary Metcalf replied that, in view of existing conditions, the Department could not recommend the passage of bills increasing the corps of chaplains, in the one case to twice, and in the other to more than four times, its present number. While all the vessels of the navy do not now carry chaplains, the chaplains are attached to certain vessels of each fleet, and the men of the vessels which do not carry chaplains are not only given every opportunity, but have been encouraged, to attend worship on board the vessels which have chaplains. In addition to this, the chaplains visit the other vessels for the purpose of holding services.

"Should the Department consider inadequate the number of chaplains afloat," said Secretary Metcalf, in his comment upon the Bates bills, "it is reported by the Bureau of Navigation that practically all of those now on shore duty could be ordered to sea, inasmuch as the enlisted men at the navy yards and stations, or attached to receiving and station ships, can readily attend services at churches adjacent to their stations; and the local ministers and societies usually welcome an opportunity to hold services at the navy yards or on board of vessels at the yards."

Former Secretary Bonaparte said, in his annual report three years ago, that chaplains on our ships should usually be young men, capable of taking an interest in the sports of the enlisted force, ready to advise them in their difficulties, anxious to compose their quarrels, and able to exercise upon them the great, though indirect, influence arising from interest in their affairs and sympathy with their troubles, on the part of a person whose character and conduct would command their respect and whose position would entitle him to deference. Having this suggestion in mind and fully endorsing it, Secretary Metcalf believes that if Congress should decide that more chaplains are required for the navy, it would not be desirable to increase the permanent force. He would rather recommend the passage of a provision authorizing the appointment of a temporary force, who would serve for five years, and from the more successful of whom vacancies in the permanent corps could be filled as they occur.

Reference was made in one of the Bates bills to the question of the "relative rank" for chaplains. In this connection Secretary Metcalf indicated to Chairman Foss

that section 7 of the Navy Personnel Act provides that "All sections of the Revised Statutes which, in defining the rank of officers or positions in the Navy, contain the words 'the relative rank of' are hereby amended so as to read 'the rank of.'" One of the Bates bills provided that the uniform of chaplains should be the same as "provided by or in pursuance of law for other seagoing officers of the same rank." The Department strongly opposes this suggestion, as being both "contrary to present practice and obviously inappropriate."

THE RESTORATION OF OFFICERS

Numerous bills rest in the pigeon-holes of the Naval Committees of Congress calling for the restoration of officers to their former positions in the naval service. When these measures were brought to the attention of the Department, it registered its strong disapproval of their adoption. Most of the measures were introduced through political friends of the applicants for restoration, but the Department took the position that the best interest of the service could not be served by the adoption of such measures of relief.

When the attitude of the Department became apparent, members of the Naval Committees declined to take favorable action upon these individual relief bills. Secretary Metcalf endorsed the position of the Bureau of Navigation,—that it is inadvisable to restore to the active list of the navy officers who have been retired. This attitude was based upon the fact that the occasional benefits of such restoration by special legislation are more than offset by the discontent of officers who generally lose numbers and position on the list in coming back, and by the unrest engendered among those over whom the officers so restored are placed.

The Department takes the view that officers who remained in the service have probably had additional duty or undesirable details as a result of such retirements, and that they would also lose in possibilities for duty and command through each officer restored. Many of the officers who have availed themselves of the privilege of voluntary retirement during the past three years have, by such retirements, avoided a tour of sea duty, and have thus compelled the officers on the active list to remain at sea with very little prospect for shore-duty assignment. The position of the Bureau of Navigation, as approved by Secretary Metcalf, has been that the restoration to the active list of an officer who has avoided some of the disagreeable services of the navy, and placing him above other officers

who have been forced to perform those duties, would be certain to cause great discontent and more than offset any advantages that might accrue from such restoration. For instance, one of the officers seeking restoration to the active list in a command grade had been on the retired list over three years, consequently missing active duty afloat in the lower grade, and this has disqualified him to that extent for the responsibilities of command afloat. Improvements in naval armament progress rapidly, and three years amounts to a great deal in an officer's career.

THE BUFFALO'S RESCUE AT SEA

Not far from Santa Catalina Island, off the Coast of California, the officers and men of the converted cruiser *Buffalo*, which was on her way from Panama to San Francisco, rescued the occupants of a boat that had been tossed about the sea for two days. Through the courage of the *Buffalo's* men, E. E. Easton, a former war correspondent of *Harper's Weekly* and an author of considerable reputation, his wife, and two small children were taken from a boat, where they had been without food for two days. Ordinary Seaman C. E. Hooline, of the *Buffalo*, was drowned while effecting the rescue; and another sailor, who dived overboard in an effort to save Hooline, barely escaped drowning. Happenings of this kind emphasize the fact that the navy, while primarily for national defense and the defeat of the enemy, has a service to perform in time of peace as well as in battle. Not only do our naval vessels protect American commerce and the flag abroad and perform many services not related to the art of war, but the personnel of the fleet and special service vessels are constantly on the alert to effect rescues as well as to tender aid in great catastrophes, like that which occurred some time ago at Kingston.

PROGRESS OF THE NAVAL ACADEMY

Importance should always be attached to the annual reports of the Board of Visitors of the United States Naval Academy at Annapolis, for that institution occupies a position of constantly growing magnitude in the education of officers for our navy. Upon the arrival of the Visitors at the Academy, in June, they selected General Horace Porter, who is at the head of the Navy League, as chairman, and then designated various sub-committees to take up particular subjects. Their impressions and recommendations have now been embodied in a general report, which has just been received by the

Bureau of Navigation. It contains a number of interesting and important suggestions.

Realizing that the purpose of the Academy is to instruct and train young men for the many responsibilities and duties of an American naval officer, the Board says, in its report, that it was highly impressed by the success with which the institution is managed. The maintenance of the present high standard for admission, the insistence on a full four year's course, and the broad scope of instruction are believed by the Visitors to tend to prepare the graduate for his future work and equip him for any branch of the service, leaving specialization to post-graduate courses. In the opinion of the Visitors, that is as it should be. They also commend the effort to make the instruction thoroughly practical, rather than theoretical.

Among the more important recommendations of the Visitors is that there should be created a department of discipline and drill under the general direction of the commandant of midshipmen: that all officers serving at the Academy should be detailed there for a period of three years, and that there should be legislation to commission midshipmen as ensigns on graduation. The Visitors also say, in their report, that the graduation of midshipmen as ensigns would rectify the unfairness of the past midshipman's present condition, under which he performs the duties of an officer, but without a commission, with inadequate pay and with no right of retirement or pension in case of a disability or injury. It would also place Naval Academy graduates on an equality with those of West Point. It is the belief of the Board that, in addition to serving three-year periods, no officer detailed at the Academy should be called upon to perform duty in more than one department. As to the three-year detail suggestion, the Bureau of Navigation is doubtful whether the recommendation can be carried out, owing to the present shortage of officers.

The Board was very favorably impressed with the discipline maintained, and commends the methods of Superintendent Badger, as well as the commandant and officers in the discipline department. Investigation did not disclose any evidence of hazing. On the general subject of athletics, the Board says:—

"It is quite evident that the attitude of the authorities on the subject of athletics has an important bearing on the obedience of the midshipmen to the rules and regulations. The promotion of all kinds of physical exercise

naturally decreases the tendency to offend against discipline. Every effort made to employ the minds and bodies of the midshipmen in healthy exercise and entertainment inside of the grounds of the Academy meets with a ready response, and helps to remove the tendency to break bounds or to seek amusement in ways that are not permitted.

"The Board approves the maintenance of the recognized forms of competitive athletics,—for instance, the Academy baseball, football, and track athletic teams,—with their games with the Military Academy and the various universities; also the Academy eight-oared crew, which the Board believes should participate annually in the college regatta at Poughkeepsie; also that every reasonable form of physical exercise for which there is room in and about the buildings should be provided. There is already an ample number of dirt tennis courts, but some of them should be concreted to permit playing in winter. Several basket-ball sets have been put up in the armory, and there are adequate and appropriate spaces for installing handball courts, billiard and pool tables, and bowling alleys. All these can be provided at slight expense and are natural healthy forms of recreation, some of which must now be sought outside the gates. Especially should floating baths be provided at some convenient point where the waters of the Severn River are not polluted by sewage. The midshipmen who are at the Academy during the summer (fourth classmen) should have every opportunity for swimming in salt water in the open air. At present an indoor pool of artesian water is the only provision, and there is no bathing beach or floating bath."

The Board recommends the purchase of three blocks of land which form a jog protruding into the Naval Academy Grounds. During three years the remains of Admiral John Paul Jones have remained without permanent sepulchre, owing to the neglect to provide the necessary funds, and the Board makes an earnest recommendation for an early appropriation for that purpose. The architect's estimate for the construction of the crypt in which the remains of John Paul Jones are to be deposited is \$150,000, to make it conform entirely with the character and beauty of the architecture of the chapel. The Board believes that, with some modifications, it can be given sufficient character and dignity for a minimum amount of \$135,000.

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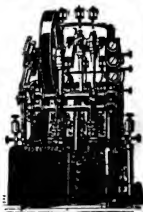
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THE AGE OF WIRELESS

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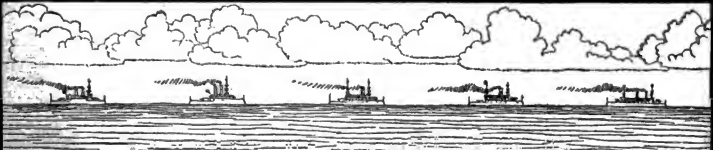
FOREIGN NAVIES

FOREIGN NAVAL CORRESPONDENCE:

THE SPEED OF THE INDOMITABLE

GERMANY'S BILLION-DOLLAR NAVY

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WASHINGTON, D.C., AUGUST, 1908

No. 7

NOTE AND COMMENT

ON AUGUST 18, Rear Admiral Robley D. Evans, after forty-eight years of active service in the United States Navy, retired from the active ranks of the naval service, having reached the age of sixty-two years. Congratulatory messages poured in upon him at the hotel at Lake Mohonk, New York, where he is spending the summer. President Roosevelt sent a dispatch, saying, "All good Americans owe him a debt of gratitude." Rear Admiral Evans entered the retired list with a feeling that rest had come as a reward of long and honorable service, and says he hopes to enjoy the comfort that rest may bring, unless "some emergency" calls him back into service, when he will give his remaining years to his country. This is the spirit that has always animated our navy, since the time of Paul Jones.

The career of Rear Admiral Evans is too well known to need repetition. Rudyard Kipling summed it up in a few stanzas that he wrote on the fly-leaf of a set of his works sent to the Rear Admiral ten years ago:—

"Zogbaum draws with a pencil,
And I do things with a pen,
But you sit up in a conning tower,
Bossing eight hundred men.

Zogbaum takes care of his business,
And I take care of mine;
But you take care of ten thousand tons
Sky-shooting through the brine.

Zogbaum can handle his shadows,
And I can handle my style;
But you can handle a ten-inch gun
To carry seven mile.

To him that hath shall be given,
And that's why these books are sent,
To the man who has lived more stories
Than Zogbaum or I could invent."

It was fitting that Admiral Evans, at the close of his seven years of active service in flag rank, should have had the opportunity of taking the Atlantic Fleet to the Pacific. He, however,—ill and within a couple of months

of retirement—could not continue with the officers and men on the rest of their voyage around the globe; but his spirit lingered with them. Congress, through its failure to revive the grade of vice admiral, allowed him to retire without promotion. True to the best traditions of our navy, there is not a murmur from the gallant rear admiral, who is "ready for a fight or a frolic."

AT THE time of the retirement of Rear Admiral Evans, another distinguished officer, Rear Admiral Caspar Frederick Goodrich, Commandant of the Brooklyn Navy Yard, went to the head of the active list of rear admirals, thereby becoming second in rank to Admiral George Dewey. With the exception of Rear Admiral Eugene H. C. Leutze, Rear Admiral Goodrich is the only officer on the active list of the navy who has seen Civil War service. These two mark the dividing line between the sea captains of the great civil conflict—the contemporaries of Farragut and Porter—and those of the newer navy.

Upon his graduation from the Naval Academy at the age of seventeen, Rear Admiral Goodrich was assigned, in 1864, to duty on the *Macedonia*, which was sent to run down the Confederate commerce destroyers *Florida* and *Tallahassee*. Rear Admiral Goodrich belongs to the progressive school, and has always kept abreast of the rapid evolution of modern naval construction and development. Recently he has been engaged, under the general direction of the Department, in the development of plans for consolidating the work at the navy yards, co-ordinating the bureau establishments in the yards, and avoiding the duplication of plants, clerks, foremen, and specially qualified workmen, which has been incident to the Bureau system.

Rear Admiral Leutze, the other Civil War veteran on the active list of flag officers, entered the Naval Academy in 1863. During the following summer, while on leave of absence from the Academy, he volunteered for active

service and was employed aboard the *Monticello*, under command of Lieutenant William B. Cushing, in the North Atlantic blockading squadron. Returning to the Academy, he graduated two years after the close of the war.

AMONG the interesting facts learned by foreign naval officers—French and American—during the visit of the

**Tripod
Masts
Doomed**

British battleship-cruiser—or cruiser-battleship—to Quebec was the positive statement of British naval officers that the tripod mast, which has made its re-appearance in the *Dreadnought* and *Indomitable*, is doomed, so far as the British naval constructors of the present period are concerned. Such masts were seen many years ago in the old Peruvian battleship *Huascar*. As used in recent British designs, including the *Dreadnought* and *Indomitable*, these fire-control and range-finding towers consist of a very heavy vertical steel tube, with two slanting supports. Each of these vessels carries one of these masts forward and another aft, those on the *Indomitable* being about the same height, while the forward mast on the *Dreadnought* is taller and heavier than that aft. While the tripod mast is not to be removed from the vessels upon which they have been built, the structure will be dropped in later designs, and in their place the British *St. Vincent's* will have a light mast for signalling work. The tripod mast is looked upon in naval circles in Washington as infinitely inferior to the new type of spiral tubular mast of lattice-work formation which was successfully tested on the monitor *Florida* (now *Tallahassee*) recently, and is to be placed upon all of our armored vessels, beginning with the *Idaho* and *Mississippi*. While masts, like other top-hammer, are at their best undesirable, they must be used until there comes something in the way of fire-control and range-finding that can be successfully used in gun turrets, rather than aloft on a mast.

ABOUT forty enlisted men of the navy have within the past month been selected by the Secretary of the Navy and designated by the Post-Office Department as "navy mail clerks" and "assistant navy mail clerks," in conformity with a provision of law enacted May 27, 1908.

**Navy Mail
Clerks**

They are authorized to receive and open all mail pouches, to sell stamps, make up and dispatch mails, and perform the general duties of mail clerks. Each of these clerks must take the oath prescribed for members of the postal service, and give \$1,000 bond; but as they are chosen

from the enlisted personnel, they are amenable in all respects to naval discipline, except that as to their duties as clerks their commanding officers require them to be governed by the postal laws. In accordance with this innovation, vessels of the navy having a complement of six hundred and fifty officers and men and receiving ships will each be allowed a navy mail clerk and an assistant navy mail clerk; vessels having a complement of one hundred and twenty-five or more and less than six hundred and fifty officers and men are each to be allowed one navy mail clerk; and in a regularly organized flotilla having a complement of one hundred and twenty-five or more officers and men the flagboats are to be allowed a navy mail clerk. The appointments are being made, many of the positions having already been filled. Enlisted men designated as navy mail clerks receive, besides their monthly pay, \$25 a month on vessels of six hundred and fifty men and receiving ships, \$20 a month on vessels and in flotillas having a complement of two hundred and fifty or more and less than six hundred and fifty officers and men, and \$15 on vessels and in flotillas with complements ranging from one hundred and twenty-five to two hundred and fifty officers and men. Enlisted men designated as assistant mail clerks are to receive \$15 a month for their services, in addition to the monthly pay of their rating. At the end of June, commanding officers were directed to recommend to the Secretary of the Navy competent and desirable enlisted men of the navy under their command for service in such clerkships. As fast as these names have come in, they have been submitted to the Post-Office Department for designation.

BY A NARROW margin of fourteen points the United States Navy team lost the National Rifle Match to the team representing the United States Infantry at Camp Perry, Ohio, on Monday, Tuesday, and Wednesday, August 24, 25, and 26. The total score of the infantry

team was 3,224 for the three days of shooting in this match, that team winning the National Trophy and the \$300 offered by Congress. The United States Navy team was second, with a total score of 3,210, and won the second prize,—the Hilton Trophy and \$200 in cash. A score of 3,180, made by the United States Cavalry team, gave the cavalry third place and the Marathon Soldier of Bronze with \$150 in cash. The United States Marine Corps was fourth, with a total score of 3,117, and won \$100 in cash; while the Wisconsin team was fifth, with a score of 3,073, and won \$75 in cash, in addition to heading the State National Guard teams. The Massa-

chusetts National Guard team was sixth, with a score of 3,056; the team from the United States Naval Academy was seventh, with 3,005; Pennsylvania eighth, with 3,044. The other leaders in the race, with their scores, were: The District of Columbia, 3,025; Washington, 3,000; Illinois, 2,998; Iowa, 2,994; Oregon, 2,943; Oklahoma, 2,929; Maine, 2,914, and Ohio, 2,872.

These scores show that the National Guard teams were given a regular routing by the regulars. The infantry, navy, cavalry, and marine corps, in the order named, out-shot every one of the forty-three States that entered the competition, and the cadets from Annapolis took seventh place. Only two State teams, Wisconsin and Massachusetts, got in the money class at all. The navy team made a gallant and plucky fight for first place, and the infantry and the navy were the last to finish firing on the third day of the match. Behind the firing points the entire camp gathered to watch the navy making an effort to catch up with the infantry. The score which really lost the match for the navy team was the total of 744 made in the skirmish on the second day. The teams shot in a twenty-mile wind and the run was the poorest the team had made during the year. In spite of this, the navy was defeated by a margin of only fourteen points in the three days trial. The infantry made 790 in the skirmish, the marines made 767, while the navy score for the skirmish was 754-10.

The national match was open to teams of twelve men and was preceded by two days' preliminary team practice, the amount and kind of work for each team being determined by their respective captains. The kinds of firing were rapid, slow, and skirmish. The distances were one run for the skirmish, 200 yards rapid fire, and 200, 600, 800, and 1,000 yards slow fire. The number of shots were twenty for skirmish, ten for rapid, and for the slow firing two sighting shots, and ten for record at each range. The positions were standing at 200 yards, and prone with head toward target at all other ranges. The arms used was the United States service rifle (United States magazine rifle, model 1903), with not less than 3-pound trigger pull, and the ammunition the service cartridge as manufactured and issued by the Ordnance Department of the United States Army. The distances and order of fire were 200 yards slow and 200 yards rapid fire on the morning of August 24, with 600 yards slow fire that afternoon; 800 yards slow fire the morning of August 25, with the skirmish run in the afternoon; and the match closed with the 1,000 yards slow firing on August 26. In the skirmish firing there were two shots each at 600 and 500 yards, three at 400 yards, three at 350

yards, and five each at 300 and 200 yards. Lieutenant Thomas L. Johnson was the captain of the navy team. The detailed score of that team, which won the Hilton Trophy, presented by the late Henry Hilton, of New York, was as follows:—

Lieutenant Hilary Williams: 200 yards, 42; 200 yards rapid, 40; 600 yards, 46; 800 yards, 45; skirmish, 73; 1,000 yards, 43. Total, 289.

Midshipman Vaughn V. Woodward: 200 yards, 40; 200 yards rapid, 40; 600 yards, 42; 800 yards, 44; skirmish, 77; 1,000 yards, 36. Total, 279.

Midshipman William F. Amsden: 200 yards, 43; 200 yards rapid, 34; 600 yards, 41; 800 yards, 46; skirmish, 65; 1,000 yards, 40. Total, 269.

Midshipman John W. Lewis: 200 yards, 37; 200 yards rapid, 31; 600 yards, 42; 800 yards, 44; skirmish, 42; 1,000 yards, 42. Total, 238.

Midshipman Willis A. Lee, Jr.: 200 yards, 42; 200 yards rapid, 37; 600 yards, 46; 800 yards, 50; skirmish, 57; 1,000 yards, 38. Total, 270.

Midshipman Andrew D. Denny: 200 yards, 43; 200 yards rapid, 40; 600 yards, 45; 800 yards, 43; skirmish, 71; 1,000 yards, 43. Total, 285.

Lieutenant George B. Landenberger: 200 yards, 44; 200 yards rapid, 43; 600 yards, 35; 800 yards, 46; skirmish, 73; 1,000 yards, 39. Total, 280.

Midshipman Lloyd C. Stark: 200 yards, 41; 200 yards rapid, 39; 600 yards, 37; 800 yards, 44; skirmish, 51; 1,000 yards, 40. Total, 253.

Ensign Stephen Doherty: 200 yards, 39; 200 yards rapid, 29; 600 yards, 44; 800 yards, 43; skirmish, 78; 1,000 yards, 40. Total, 273.

Midshipman Eugene E. Wilson: 200 yards, 42; 200 yards rapid, 39; 600 yards, 44; 800 yards, 45; skirmish, 54; 1,000 yards, 37. Total, 261.

Ensign Isaac F. Dorch: 200 yards, 42; 200 yards rapid, 38; 600 yards, 42; 800 yards, 46; skirmish, 55; 1,000 yards, 39. Total, 262.

Midshipman Carl T. Osburn: 200 yards, 42; 200 yards rapid, 36; 600 yards, 41; 800 yards, 48; skirmish, 47; 1,000 yards, 37. Total, 251.

Totals: 200 yards slow, 497; 200 yards rapid, 446; 600 yards, 505; 800 yards, 544; skirmish, 744; 1,000 yards, 474. Total for the team, 3,210.

Lieutenant Arthur P. Fairfield was the captain of the Naval Academy team, which stood seventh in the honors, and the other members on the eligible list of the team from whom the twelve members were chosen were Midshipmen Harry W. Stephenson, William W. Smith, Harold T. Smith, Ernest L. Gunther, Henry H. Porter, Preston B. Haines, John S. Peoples, Oscar C. Badger, Charles C. Davis, Charles C. W. Mailley, Folett Bradley, T. Albert Parker, Grigsby E. Thomas, John B. Ewald, Raleigh C. Williams, William E. Moorman, and William D. Billingsley.

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THE NAVY appears this month under a new management. With one exception, the writers who contribute regularly to its columns remain the same, and its policy, so far as its purpose is concerned, remains unchanged. Those now responsible for the paper have become convinced by its history of nearly two years that it is a useful organ, and they are determined to keep it before the public and to maintain for it the place which it has already won, and to widen its usefulness so far as possible.

With a fixed purpose to avoid a prejudiced attitude on any question of naval policy, THE NAVY will nevertheless not be disposed to "let well enough alone," for that tendency needs no special advocates; it is merely the result of lack of policy or of weakness of policy. Far less will these columns preserve silence on the subject of evident or apparent abuses. The management will endeavor to discover the best among the proposals of those who are working for perfection through progressiveness, and will strive to aid such measures, to the best of its ability.

The matters which THE NAVY will be called upon to discuss and to criticize will often be of the most technical character,—such as will provoke wide differences of expert opinion. While we feel that we are not entirely without the expert character, we fully recognize the difficulties of the problems which we are studying, and shall frequently advance our opinions only tentatively, holding ourselves always open to conviction. We ask, therefore, that we be given the assistance of the frank and full criticism of our friends, to the end that we may continue to advocate only what is really best for the navy.

We have unusual facilities for getting information on any subject connected with the navy, and will be pleased

to answer inquiries, publishing question and answer when of sufficient general interest.

The attention of Navy League members and other readers of this magazine is invited to the items in the Navy League Section, page 39.

THE NAVAL CONFERENCE AT NEWPORT

Elsewhere in this number will be found a complete resumé of the causes, proceedings, and results of the recent Naval Conference which met at Newport on July 8, and, after organization and preliminary work, was addressed by President Roosevelt on July 23, and finally adjourned, after over six weeks of full discussion and deliberation, on August 21.

It is not the policy of THE NAVY to publish everything that comes to its hand, merely because it is exclusive and important news. It will always be its purpose to exclude from its columns any information, no matter how interesting it may be to its readers, if to publish it might be contrary to National policy. We do not pretend to know in detail all that happened at the Conference, but what is published may be relied upon as accurate and written in the light of other information which we have felt obliged to withhold for the reasons given above.

It is known to be the practically unanimous opinion of the officers who attended the Conference that its results will prove of the utmost value to the service. Many of these officers met with the feeling that no useful purpose could be served by the meeting; that while the Conference might differ from the Department and its Bureaus with regard to plans for the new ships, that the Department, with its expert and organized establishment, was quite as apt to be right as a conference of officers drawn from general service. The conferees met with wide differences of opinion. Generally speaking, they were supposed to be divided into two classes,—first, the conservatives, including most of the older officers, and in a general way including those who for years had been most closely identified with departmental administration; and secondly, the radicals, who, as a rule, were the younger officers.

It must not be forgotten that the terms "old" and

"young," as often used in the navy, have long since ceased to have their ordinary every-day meaning. The "younger officers" referred to above included many forty-five and some even fifty years of age; the "older officers" were, as a rule, older in years, but even in this class were some perhaps not over forty. These were of a class who have long considered themselves "conservative" and who were inclined to resent innovations, which, when presented by an officer of any age, stamped him as a "youngster."

It cannot be denied that at first there was some lack of openmindedness as between these classes; the radicals were intolerant of the "old fogeyism" of the conservatives; the conservatives equally intolerant and even outraged by the presumption of the radicals. President Roosevelt immediately resolved much of this difficulty. In his address soon after the opening of the Conference, he confessed his own unwillingness to advance an opinion on most of the matters under consideration, and simply called upon those present to find out where the right lay. He directed that there should be absolutely full discussion of every point in question or dispute; that the Conference should record its opinion by a vote of all the members present; and that the vote of each member should be recorded. He allowed it to be inferred that he would later acquaint himself with the position of the several members on the various matters before the Conference.

The upshot of it was that officers who originally had been impatient of each other's opinions first learned to respect them, and finally found themselves much in accord on practically every point under discussion. In fact, it can be said that on each of the formal findings of the Conference the vote was practically unanimous. It is known that one of the most earnest of the radicals—one who had always been almost violently opposed to the so-called "soft-end ships"—came finally to agree with his brother conferees and to recognize that the "soft end" does embody a compromise of the utmost value in naval construction, and that, while the ideal and impossible ship would have the heaviest armor everywhere, guns of heaviest calibre, and engines of greatest speed, with enormous coal and magazine capacity, the so-called soft-end design made possible a formidable ship with armor where it is most needed, with engines of ade-

quate power, and with sufficient coal and magazine capacity; in short, a compromise ship, equal to the best that the European and Asiatic powers are able to build.

Among the general lessons of the Conference it seems clear that, in some way, this method of determining or criticizing the naval design and administration should be continued from year to year. It has been suggested that the organization, or a nucleus of it, be made permanent and continuous, and that periodically it assemble, as it has done this year, to pass upon all moot points. Officers ordered to the Conference would bring in ideas from the active service afloat, and would inevitably come in some degree to represent a sort of opposition. Such opposition, properly regulated, could hardly fail to be as healthy a force in naval administration as it has been proved to be in the government of every country. It would seem, however, that the Conference would lose in value to the degree that it, like the Bureaus, became in any sense permanent or continuous. It is the fact that it represents the possibility of opposition that constitutes its greatest excellence. The officers attending are neither more able, nor more conscientious, nor in any sense inspired above their brothers of the Bureaus. The difference is that the conferees get results, because they are rubbing shoulder to shoulder with the defects of the service,—such as they are,—while the officers of the Bureaus go on in happy confidence that all that they do must necessarily be well done.

Let the Conference be periodical. Let its personnel change as much as possible from year to year. Another year it might be of advantage to order, somewhat in advance of the Conference, certain officers thoroughly to prepare themselves on topics which would be taken up at the general meeting. This would tend to a great extent to eliminate the possibility of pride of opinion carrying one to the extent of obstinacy. It is quite conceivable that two officers meeting in conference, one believing the armor belt too low and the other believing it too high, should fall upon one another tooth and nail, argue the point more or less bitterly, and each at the end be of his original opinion. If these same men were ordered, three months before the Conference, thoroughly to inves-

tigate and inform themselves on this subject, to study foreign models, and to consider the question theoretically and practically, they would probably meet at the Conference in substantial agreement with each other. Neither would have that pride of opinion which so often is born of some degree of ignorance. Moreover, they would have become experts or specialists, with no particular axe to grind; their opinion and report would command the respect of all, even of the man who thinks so-and-so merely because it is a habit. Of course, such men specially detailed to investigate particular subjects should not, as a rule, be taken from the Bureaus or the navy yards. They should not be experts; they should be free-minded non-expert men, acting under orders to become expert.

LETTERS TO THE EDITOR

We ask our friends, in and out of the service, to favor us with letters for publication, discussing current naval topics. We should be glad to have their suggestions as to matters which we may take up to urge upon Congress or the Department.

Letters to THE NAVY will be printed, when deemed of general interest, whether or not they are in accord with THE NAVY'S views.

We desire to draw special attention to the following letter concerning the friction that exists in the British Navy, involving, first, Admiral Lord Charles Beresford and Rear Admiral Sir Percy Scott, and later Admiral Sir John Fisher and the Admiralty. These troubles constitute a grave and far-reaching scandal; and by furnishing a standing example of insubordination in high places, will inevitably work to the detriment of the morale of the British fleet. Nor are the ill effects or importance of the conditions referred to materially affected by which officer is in the right. It is evident to all that a condition exists that is intolerable in a naval service.

To the Editor of THE NAVY:—

In the English service papers and magazines for some time past a newspaper campaign has been conducted against Admiral Lord Charles Beresford, the Commander-in-Chief of the Channel Squadron, during his absence at

sea at the summer maneuvers. The allegations against Lord Charles were that he had made a signal to the *Good Hope*, which, if it had been obeyed by Rear Admiral Sir Percy Scott, would have resulted in a collision between the *Good Hope* and the *Argyle*; and that he had been guilty of insubordinate conduct in refusing to take Admiral Sir John Fisher's hand when it was offered at the King's levee.

Whether the latter allegation be true or not, Lord Charles' action would not be surprising, if other statements be true that are being made in naval circles. Your readers will remember that Admiral Sir Percy Scott was guilty of a gross act of insubordination in his famous wireless message about paint and gunnery; and that a public reprimand was administered to him by Lord Charles Beresford in the presence of the officers of the fleet. After this it was clear that his usefulness in the fleet was at an end, and had the First Lord of the Admiralty not wished to make Sir Charles' position intolerable, he would at once have found other duty for Sir Percy. But, as the latter was not removed, he evidently thought he was a privileged person.

The next open clash between the two Admirals was when Sir Percy, disregarding the customary method of performing an evolution that had been ordered, turned the *Good Hope* in a direction contrary to the one which Admiral Beresford wished. Beresford by signal directed the other ships of the squadron to perform the evolution as he wished it. This separated the *Good Hope* from the other ships of the squadron. At the proper moment Admiral Beresford again made signal for the ships to turn into a certain position. Sir Percy again disregarded the signal and deliberately turned away from the position he should have occupied. Lord Charles thereupon inquired by signal whether the Rear Admiral considered that the execution of the order would have been dangerous, and when Sir Percy replied that he did so consider it, the Admiral then, by signal, approved of the step he had taken. It was quite clear to all competent seamen present that no danger existed, and Lord Charles' conduct was generous in the extreme. A short time afterward, however, the London *Times* came out with an attack upon Lord Charles, based upon information which it was believed came from a private letter written by Sir Percy to Sir John Fisher, and by him supplied to the *Times*. Of course, if this be true,—and those in position to know believe it to be true,—Lord Charles or any gentleman would be justified in refusing to take Sir John's hand anywhere. If it be not true, it is most unfortunate that Sir John continued to protect Sir Percy and to keep him in the squadron, where his influence could only be for harm, until the scandal became so great that it came up in Parliament and the Admiralty were forced to investigate, and, after their official investigation, had to report that the statements which had been made against Lord Charles were untrue and admit that the evolution, as ordered by Lord Charles, was not dangerous.

Of course, such a state of affairs is disastrous to the morale of any service. Admiral Fisher, who never was a success in the handling of fleets, had a great reputation as

being an organizer and an administrator; but, unfortunately, his head was turned by the great credit he obtained by his first reforms, and he apparently felt he had a heaven-given mission to go on reforming everything. He managed to keep in with both political parties by cutting down the expenditures of the navy, and it is only now becoming apparent that his economy was ill advised,—that where a penny was saved a shilling will have to be

spent to take the nine stitches which would have been saved by the stitch in time.

The date of Lord Charles' retirement is drawing near and he will soon be a private citizen, in a position to tell his fellow citizens his opinions in regard to the navy, and all who are interested in the English service are looking forward with great interest to that time.

X. Y. Z.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

THE SPEED OF THE *INDOMITABLE*

August 5, 1908.

While it is yet too early to obtain official data respecting the speed performance of the new British armored cruiser *Indomitable* on her return voyage across the Atlantic Ocean from the Quebec Tercentenary, with the Prince of Wales aboard, enough is learned unofficially to make this voyage stand out as an epoch-making event in contemporary naval progress. It is stated that the official computation of the average speed of the *Indomitable* from land to land—Belle Isle on the Newfoundland Coast to Land's End, England—was 24.8 knots. It is to be remembered that the highest designed speed of any armored ship up to the present time has been 23 knots, and that this record of 24.8 knots was the average for the whole trip across the ocean, by a battle cruiser that is in reality a battleship, although officially designated as an "armored cruiser," carrying heavy armor and an armament of eight twelve-inch guns, which place her in the *Dreadnought* class of all-big-gun big ships. Aside from breaking the record established several years ago by the British armored cruiser *Drake* on the latter's return to England from Annapolis, the performance of the *Indomitable* was all the more remarkable in the light of the assertion that during the last three days of the voyage from Belle Isle to Land's End the *Indomitable* made an average speed of 25.13 knots an hour, and for four hours during the latter portion of the journey an average speed of 26.4 knots was obtained. Another thing that makes the run of the *Indomitable* significant is the fact that she is understood to have carried coal and stores enough to give her an approximation to true fighting trim and was not stripped in order to enable her to make a spectacular record run. The average speed of the armored cruiser *Drake*—a 23-knot vessel—when she steamed home from the West Indies

after her visit to Annapolis several years ago was 19 knots.

Broadly speaking, the voyage from Quebec to England was made in five and one-half days. The *Indomitable* left Quebec early on the morning of Wednesday, July 29, and the journey of 719 miles down the St. Lawrence River had to be made at comparatively slow speed on account of the fogs. After passing through Belle Isle Strait, the cruiser stood out into the open sea; at Belle Isle the real race began. The fogs continued some distance, and care had to be exercised near the Newfoundland coast to avoid collision with enormous icebergs. After her record passage, the *Indomitable* arrived in the roads at Cowes shortly before ten o'clock on the night of Monday, August 3, and took up berth near the royal yacht *Victoria and Albert*, on which the King and other members of the royal family were passengers. The Prince of Wales immediately boarded the royal yacht and reported the record performance to the King. On the following morning the Prince of Wales presented souvenirs of the voyage to the officers and directed the distribution of cash prizes among the bluejackets. Officers and engineers of the cruiser were decorated by the King in recognition of their service on the record run, and medals for special service were presented to the chief stoker and others in charge of the stoking and engine-room forces. In order to commemorate the run, the figure of a rooster with a comb shaped like the royal feathers of the emblem of the Prince of Wales, is to be mounted on the masthead.

The *Indomitable* has set a record which will undoubtedly have a remarkable influence upon future naval designs, because it has established in the minds of both engineers and strategists the possibility of speeds which have up to the present been deemed impossible of realization without serious sacrifice of armor or armament necessary for adequate offensive and defensive power.

GERMANY'S BILLION DOLLAR NAVY: IS IT A MENACE TO THE UNITED STATES?

Berlin, August 10, 1908.

In well-informed naval circles it is an open secret that the armored cruiser *Scharnhorst* is a confirmed "lame duck," this being the result of the terrific shock she sustained from her grounding in Kiel fiord last January. A hole ninety feet long was torn in her hull, and it was only by the prompt closing of water-tight doors and the exercise of every possible precaution that she escaped foundering. After being in the dockyard for barely five weeks she re-entered the cruiser squadron, apparently in as good condition as before the grounding. But it soon became obvious that this was far from being the case. Her speed has dropped from twenty-three to eighteen knots, her engines rebel at the least attempt to drive them above moderate speed, and the whole structure gives evidence of severe strain,—defects which it will be impossible wholly to eradicate. This is naturally regarded as an exceptionally unfortunate mishap, for the *Scharnhorst*, together with her sister ship, the *Gneisenau*, represent Germany's only two really powerful armored cruisers now in commission. Upon a displacement of 11,500 tons, they each carry eight 8.2-inch and six 5.9-inch guns. There is an Admiralty regulation to the effect that any fighting ship lost or disabled shall be immediately replaced by a similar or improved unit, so it is therefore probable that Admiral von Tirpitz, when making his next report to the Reichstag, will urge upon that assembly the necessity of making provision for the inclusion of an additional cruiser in next year's program of construction.

The battleship *Westfalen*—built under the official designation of *Ersatz Sachsen*—launched from the Weser yards at Bremen last month, finishes the 1906 program, so far as the actual building is concerned; and the *Nassau*, *Westfalen*, and *Blücher* represent Germany's first step toward the creation of one of the mightiest fleets in the world. On the 22d of this month the battleship *Ersatz Württemberg* is due to take the water at Stettin, the contract calling on the Vulkan Company to have her ready for commission next summer. This battleship was authorized under the 1907 program, as was her sister ship *Ersatz Baden*, also shortly to be launched; while the armored cruiser "F" has been progressing steadily at Hamburg since last March, on the 25th of which month she was laid down by Blohm and Voss.

This year the battleships *Ersatz Oldenburg*, *Ersatz Braunschweig*, and *Ersatz Siegfried*, and the armored cruiser "G" are to be commenced, the last named said to be of

22,000 tons. The above represent seven battleships of the highest fighting value, exclusive of three cruisers, which, with the possible exception of the *Blücher*, will more than rival the British *Invincibles* in hitting power. Next year four more armored ships are to be laid down,—three battleships and one cruiser. Thus, by the summer of 1911, ten large battleships and four great armored cruisers will be flying the German ensign. This is quite far enough to look ahead and keep within the calm atmosphere of facts, but it must not be forgotten that every year from that date on at least three 20,000-ton armored ships will be built.

German shipbuilding yards have now conclusively demonstrated their ability to turn out fighting ships in a little more than two years, thereby verifying Admiral von Tirpitz's recent declaration in the Reichstag to that effect,—a declaration that was at first scoffed at by the British press for an empty boast. It has been possible to collect the following authentic data relative to the building capabilities of the most prominent yards in this country: The Vulkan Company, of Stettin, report that they can lay down two battleships and two armored cruisers each year, finishing them complete in from twenty-four to thirty months, provided the ordnance is promptly delivered. The achievements of this firm in building large Atlantic passenger liners of 23-knot speed justify the belief that this estimate can be realized. The Weser Company, of Bremen, make the same claim; the Germania (Krupp) Works, at Kiel, and Blohm and Voss, of Hamburg, quote the same time, and could each lay down two armored ships; while Schichau and other builders promise equally good results as to delivery. Krupp's factory at Essen has been greatly enlarged, the result being an increased capacity for the production of guns, gun mountings, and armor plates. Late last month this firm made a debenture issue of twelve and a half million dollars,—a fact that apparently indicates the further extension of the Essen factories. With its present facilities, however, the firm claims to be able to meet all demands of the Imperial Marine if foreign work is rejected.

Germany stands committed to an average annual expenditure on her Navy of \$104,300,000; four years ago the annual outlay was less than half this sum, which strikingly represents the naval ambitions of the country. The ten-year building program sanctioned by the Reichstag early this year calls for a total expenditure of \$1,043,000,000. The scheme actually originated in 1906, but was delayed, owing to the advent of the British *Dreadnought*. The result is that the original sum of

\$796,500,000 has been swollen to the above amount, and of the \$245,000,000 added practically \$180,000,000 is for new construction. A cynic might be moved to smile when he reflects that little less than a year ago the Powers sat in conclave at The Hague, solemnly uttering platitudes on universal peace, disarmament, and the approaching millennium.

It is necessary to remember that, having embarked upon such a vast naval program, Germany will by very force of circumstances be compelled to carry it through to the end; for until her fleets are supreme throughout the Seven Seas they are virtually a hostage in the hands of the strongest naval power. For any power to have a fleet on the high seas which is not the strongest fleet afloat is an increase, not of strength, but of vulnerability. Germany has thus proclaimed in plain language before the world the extent of her martial ambition. That she will do her utmost to realize this ambition is as certain as anything in this mutable world may be. Speaking at Bremen a few years ago, the Kaiser uttered those words which have since assumed a greater significance than was at first attributed to them. "Our future," he said, "lies on the water. German interests and German honor must be protected in distant seas, and to this end Germany must be powerful on the sea."

It is but natural that Germany's great awakening to maritime ambitions has created a steadily growing uneasiness in Great Britain, who sees her century-old undisputed naval supremacy threatened by a formidable and determined near neighbor, her diplomatic relations with whom are not uncharacterized by occasional friction. Meanwhile America stands by in her popularly conceived rôle of disinterested spectator. But, taking every circumstance into careful consideration, is this disinterestedness wholly justified and entirely politic? Is the United States quite unconcerned with the far-reaching naval schemes and political hopes of Germany? In the opinion of the writer—an opinion based upon grounds more substantial than those of idle hypothesis, and shared by more than one thoughtful American who has keenly observed the trend of recent events in Europe—the reply to both these queries should be in the emphatic negative.

This statement may at first sight savor of sensationalism. Viewed across three thousand and odd miles of water, a menace loses much of its reality: but it is for this very reason that the American public should not maintain an attitude of complete detachment from a question which may at no very distant date assume for them a vital importance. The influence of that complicated system which governs German *Weltpolitik* is al-

ready evident in the United States, though its present rôle at Washington is studiously conciliatory; but to this we shall revert hereafter.

The year 1808 was one of the most eventful in contemporaneous history; it represented an epoch in the history of the German nation, for in that year the first systematic plan for the creation of a powerful navy was authorized by the Reichstag. Prior to then, the Imperial Marine was regarded by the rest of Europe with an indulgent eye. It was composed of a few coast-defense ironclads and protected cruisers of insignificant fighting value, though peculiarly adapted to the requirements for which they were built. The shifting shallows which are so characteristic a feature of the German North Sea coastline were looked upon as offering more real difficulties to hostile naval demonstration than the existence of a powerful fleet, since deep-draught battleships must perforce keep at a respectful distance. In a word, the German Navy of that period was first and finally for defensive purposes. But with the ever-increasing development of her influence in countries from which she is separated by the ocean, and the remarkable—the absolutely phenomenal—expansion of her maritime trade, Germany was not slow to recognize the inestimable advantages afforded by the possession of a navy able to go anywhere and do anything. From the passage of the 1808 Navy Bill, German expansion in that direction has been at once progressive and aggressive, ship after ship having been laid down with mathematical precision. With growing power came the incentive to make this power felt in quarters where its presence would be economically and politically advantageous. Thus it is that to-day the German flag is a common sight in waters where ten years ago it was unknown,—in the South Atlantic, off the West African coast, in the Pacific Ocean, and the China Sea formidable German cruisers are constantly patrolling, while the Baltic and the North Sea are naturally points of concentration for most imposing battle fleets. *Deutschland, Deutschland überall*, from a phantasy indulged in by the German Chauvinist, has become a recognized fact. And it is also generally conceded that the presence of German influence has had anything but a tranquilizing effect in those spheres where it makes itself unmistakably felt. To deny that Germany's policy in home waters has strongly revived the European war scare is waste of breath; to urge that the Imperial presence in a German armored cruiser off the coast of Morocco during a most crucial diplomatic period did not all but precipitate a cataclysm is futile in the face of acknowledged facts. Even the Emperor's pacific assurance that

his navy exists only for the protection of national interests is seriously discounted, when it is remembered that such interests may be, and in fact are, continually in process of being created in every inhabited portion of the globe. The recent troubles in the remote little island of Samos were the direct outcome of a dispute between a German manufacturer and the legislative assembly of the island regarding the former's violation of the tariff laws. At the time of writing there is an agitation in the extremist press of this country for the strengthening of the Far Eastern squadron, because China is apparently unwilling to concede to Germany the protectorate over Turkish subjects resident in China,—a privilege that has been France's for over two centuries. It is unnecessary to add that France has not even been consulted. A British squadron some weeks ago visited certain Scandinavian ports; a German squadron is now engaged in impressing the inhabitants of these same ports with the fact that a hardly less powerful fleet is always within much nearer reach of the Scandinavian harbors. The one or two instances given here are by no means isolated, but the argument they support is so incontrovertible that further examples are not needed.

Placid, unsuspecting people are prone to ask to what end this great activity on the part of Germany is tending, and what she stands to gain by her unremitting furtherance of *Weltpolitik* principles. The answer is not far to seek: it is Germany's primary ambition to be, under William II and after, what Spain was under Philip II, or what France was under Louis XIV or Napoleon,—a Power supreme in Europe, at least. The realization of this ambition calls for enormous outlays of cash, and these in turn can only be afforded by the imposition of exceptionally heavy taxes, which could be covered by the German people only through vast commercial prosperity that would supply them with the necessary means. A well-known political writer recently said: "If the German Government has always directed its attention toward promoting the national commercial interests, it is on the old principle of *pas d'argent pas de Suisses*, otherwise said, without commerce no money, and without money no safety for the Crown." Possibly this explains the forcible Imperial interest behind the German naval expansion movement.

Europe, as previously noted, is very nearly concerned in these matters for geographical reasons. America, chiefly by reason of her Monroe Doctrine, is—or should be—also concerned, if perhaps in a lesser degree. What a tempting bait to a nation in pressing need of external resources is presented by almost any one of the South

American Republics, and what magnificent opportunities of gaining a foothold there on the pretext of outraged national dignity are offered by the spasmodic administrations of those same Republics! What sort of shift would a recalcitrant Castro have experienced at the hands of the Wilhelmstrasse had the present dispute been with Germany instead of with the United States?

Under present circumstances Germany, it is true, is not in a position to obtain foothold on the South American seaboard. She lacks an adequate naval base from which her fleets could operate with freedom in the South Atlantic, but signs are already apparent that such a base may shortly spring into being. By an opportune display of force some three years back Germany gained an immense amount of prestige in Morocco. Her merchants have the trade of the country entirely in their hands; German imports have almost exclusive entry, and German steamers run the British very closely in the carrying trade between Moroccan ports and Europe. Mogador, a day's steaming south of Tangier, though not possessed of an ideal harbor, has other advantages that lend a color of truth to the reports that the acquisition of this port by lease or annexation has recently engaged the attention of the Imperial Government. This week news has come from Madrid that the Spanish Government contemplates the granting of a concession to the North German Lloyd Company for the establishment of a coaling station at Tenerife, the largest of the Canary Islands. It seems as though German diplomacy has won another triumph here, as for years past British steamship companies have in vain petitioned Madrid for such a concession. Walfish Bay, geographically situated in German South West Africa, is, however, the most desirable South Atlantic base, but an inky fate gave this into the possession of Great Britain, although Swakopmund, the great German colonial settlement, is less than fifteen miles distant. All the world knows how Berlin has incessantly endeavored to acquire this bay from the Cape Government. Colonial Secretary Herr Dernburg quite recently offered to trade some territory on the east coast for Walfish Bay, but so far the scheme has not succeeded. There have been many other instances of German activity in the South Atlantic, but the examples given are perhaps sufficient proof of her desire to secure a base within easy reach of the magnificent wealth of Brazil and the Argentine.

But even were the Germans already in possession of a naval station adjacent to the South American continent there would still be no occasion for immediate apprehension at Washington. There is a Prussian tradition to the effect that the best method of preparing for successful

violence is a preliminary course of persuasive diplomacy. Over here in Europe we are able to trace the present policy of the Wilhelmstrasse to this tradition. It is generally admitted that the absence of Anglophobic demonstrations in the German press these days is due merely to the recognition that former outbursts of that nature were ill advised. "Nothing is so bitterly regretted in Berlin," recently wrote a well-informed publicist, "as the loquacious folly of one arrogant interval." What is true with regard to England is equally true concerning the United States; but German policy as exercised at Washington differs from that at London, inasmuch as practically no suspicion of aggressive German intentions yet exists in the former capital. Nevertheless, articles written in a manner calculated to depict this country as a peace-loving nation sorely maligned by spiteful journalists in Paris and London have sought to allay dangerous curiosity among the American public. A recent example of the kind was an article in the *North American Review*; though this, it will be remembered, has not gone unchallenged.

The news that Congress had rejected the four-battle-ship program was nowhere received with more secret elation than in Berlin, where the rapid development of the United States Navy has been viewed with no complacent eye, despite all assertions to the contrary. An extremely powerful American fleet would do much toward retarding the realization of certain ambitions prevailing in this country; and there was thus a good deal of inward satisfaction when it became known that only two battle-

ships are to be laid down in America this year. Just as ten years ago a Japanese menace in the Pacific would have been laughed to scorn, so to-day would the bare assertion of aggressive intentions on the part of Germany toward the United States be looked upon as idle phantasy. To declare that Germany bears malice toward the United States would be overstepping the mark, but nations, we know, do not go to war in these enlightened times from motives of mere spite. Germany's foreign policy is directed less by ambition than by economic necessity; that a career of conquest and over-sea expansion will be forced on this country is as certain and as logical as one of Euclid's problems. Already the preliminary steps that all growing nations must take toward external development have been essayed by Germany, and already those steps have brought her very near to hand-grips with Great Britain. The salvation of Britain can only be secured by a rigid adherence to her policy of maintaining a navy more than equal in strength to that of her rival, and signs are not lacking that Britain is awakening to this fact. If, therefore, Germany is balked by England in her career of expansion at the expense of British territory, as will probably prove the case, she must of necessity turn her attention elsewhere; and unless the United States Navy is represented in the Atlantic by a very powerful fleet the Monroe Doctrine will avail little when Berlin decides that the time to exploit the vast natural resources of Brazil or the Argentine has arrived.

H. C. B.

THE UNITED STATES NAVAL CONFERENCE OF 1908

The recent naval Conference at Newport should perhaps be styled "The United States Naval Conference of 1908," for the forces that it has set in motion for the betterment of our navy are so great and far-reaching that it is a foregone conclusion that this summer's Conference is but the first of a series of similar gatherings which will hereafter be the great initiative force of the navy. It is worth while, therefore, to record its beginnings and the details of its history.

During the last ten years, or thereabouts, there has been a growing class of naval officers who have not been content merely to bask in self-complacency under the flattering praise of newspaper writers and of the country generally, which almost unanimously proclaimed our navy

the greatest in the world. These officers have from time to time pointed out wherein there was room for improvement in our naval service; and in some cases they have kept hammering at a particular point until the needed reform was brought about. Perhaps the most conspicuous instance of this sort was the almost single-handed fight that one officer made for a system of training for gun-pointers and a system of controlling the fire of guns in battle ("fire control") which should equal or excel the methods of foreign navies. The officer referred to began his campaign soon after our war with Spain, at a time when self-gratulation had reached a climax and it was hard to make any American listen to the idea that our naval gunners had anything to learn. True, the officers

and men, in spirit and intelligence, were the peers or superiors of any, and our ships were ships to be proud of; but the Bureaus, working easily in their pleasant ruts, did not always furnish the material to keep the service abreast of the times. It was then that this particular officer, fresh from a valuable experience as a naval attaché and a tour of duty afloat, where he saw the remarkable gunnery of a British squadron, came to duty in the Navy Department. Working quietly at first, as was necessary, and then more boldly, he brought about changes in our system of target practice and the training of gun-pointers, which changes have finally made our gunners what they should be. He and others who did not forget the need of the constant effort to progress, were constantly on the lookout, not for points to form mere objects of criticism, but for points where there was need of improvement. They were fearless and industrious in recommending changes and in indicating ways and means; latterly, they have enjoyed to a fortunate extent the confidence of President Roosevelt; and latterly, too, because of their fearlessness and their industry, if for no other reason, they have been considered, in the ultra-conservative circles of the Navy Department, as "reformers" and "cranks." Their activity begot the impatience of the Department, its Board on Construction, and other branches, and the situation was ripe for a climax.

It was at this time that Commander Albert L. Key wrote a letter to the Department, in which, in definite terms and point by point, he criticized the design of ships then under construction and about to be laid down. The items of his criticism are indicated later in this article. His letter was a carefully prepared technical document, which showed on its face that it merited careful consideration. It is hardly noteworthy that it was pigeon-holed and left unacknowledged, for many previous similar reports have met a like fate. What is noteworthy, in the light of subsequent events, is that this technical document was found to be *insubordinate*. It is whispered that the Board on Construction advanced and held this view. In order to comprehend the full force of this situation, it must not be forgotten that the plans approved by the Board on Construction and for which the Board was responsible, were practically the sole subject of criticism in this letter. To pigeon-hole the letter did, in truth, seem the simplest way of disposing of so amazing an interruption of the even tenor of Departmental serenity.

Before passing to a more specific consideration of matters connected with this letter and the subsequent Conference, it is wished to indicate that the members of the Board as individuals can hardly be held responsible for

all that is done in the Board's name. The Board is but part of a more or less clumsy and inefficient Departmental System, of which the defects must all be traced back to their origin in the unwise or outlived laws that constitute and provide for our naval administration. Practically speaking, the preparation of plans for ships is by law entrusted to the Bureau of Construction and Repair. The business of this Bureau is carried on altogether by non-seagoing officers and their clerks and draughtsmen. The Board on Construction is constituted by the Department for the purpose of finally passing upon the Bureau plans and reconciling such conflicting claims for space, weight, and design as other Bureaus may make on the Bureau of Construction and Repair. But the members of the Board are themselves the heads of the interested Bureaus, and, being human, though naval officers, cannot be altogether free from the one-sided view that they not unnaturally acquire as heads of particular Bureaus. But if they were less than human, and so able to hold themselves uninfluenced by circumstances which make so strongly for partiality, they would have to be more than human, also, in order to carry on the multifarious details of their proper offices and then have time and energy to give thorough consideration to the plans of a single ship as represented by hundreds of sheets of drawings and thousands upon thousands of details, weights, dimensions, figures, almost *ad infinitum*. Is it not impossible that they should give more than cursory attention to the whole, and accept and approve the plans as presented with the compromises that they as Bureau chiefs have already practically agreed upon?

The Board on Construction, then, found Commander Key's letter insubordinate; and the matter might have ended there, for the Board is not looking for trouble and would not have pressed its view. But, in some way, President Roosevelt learned of the letter and what had happened to it. He thereupon again proved his consistency by doing the unusual, unexpected, and unprecedented. Through the Department he ordered that a conference of officers be constituted to consider the text of the Key letter and to recommend what changes, if any, should be made in the *North Dakota* and *Delaware*, then under construction, and in the *Florida* and *Utah*, soon to be laid down. His instructions were issued for the purpose of getting an impartial judgment on the points in question: the conference was to be made up of officers of all elements of the service and of varying experience and opinions.

On looking over the list of the fifty-odd officers who attended the Conference, at one time or another, it will

be evident to one who knows his Navy Register that the purpose of the President, while not defeated, was to some extent threatened from the outset. The War College itself furnished eight officers from its regular staff and eighteen more from its regular summer class. The War College is far from being typical of the do-nothing element of the Naval Establishment; but its atmosphere is perhaps too academic to furnish in its personnel just that point of view needed for most wisely considering the tangible seagoing questions that the Conference had before it. Moreover, of the eighteen, no less than half were regularly on duty in Washington. Again, of the remaining twenty-five or so at the Conference, a considerable proportion were direct from the Bureaus. The main disadvantage of such a make-up of the Conference was that a considerable proportion of the membership felt itself on the defensive, and, in the nature of things, could not in the beginning take a fully openminded attitude. As the Conference progressed, this difficulty wore away; and, at the end, pride of opinion had long been forgotten, in all but a few cases.

The conferees assembled on the 8th of July, and, having organized, met day by day, but at first accomplished little. Almost any way of ending the more or less troublesome meetings would have suited perhaps a majority. But to those to whose agitation the Conference could be traced, this appeared a great opportunity and one not to be wasted. They insisted upon being heard; they fought their ground, inch by inch. At times conditions were discouraging. Much of the time of the first days of the Conference was taken up in deciding on methods of procedure, apportioning work among committees, and determining the scope of the deliberations. These proceedings indicated where the lines were to be drawn; but little was done that was decisive, and there were signs that negative or colorless results would be the only outcome of these deliberations. It is almost pitiful to relate that Departmental red tape so far entangled these early meetings that valuable time was lost discussing, pro and con, the question of the employment of competent court stenographers to take the proceedings in full. The Department, being appealed to, allowed a limited sum of money for the purpose; but when it was found that the allowance might be exceeded by a few hundred dollars, the matter was allowed to drop.

Then, as suddenly as the Conference had been born, it was awakened to a sense of its own powers and responsibilities. The awakening was at the hands of the President, who came up from Oyster Bay and arrived at Newport, on July 23, for the purpose of attending and ad-

ressing the Conference. He took this occasion to deliver an address of international significance, wherein he dwelt particularly on our naval policy. In more intimate remarks, behind closed doors, he spoke to the conferees of the duty which had brought them there, and detailed his wishes as to the methods to be pursued. He allowed it to be understood that he would continue to interest himself in all matters relating to the Conference, even to the point of learning how the several members might vote on each of the questions to be considered. This visit completely altered the spirit of the body. Whereas, before many officers apparently looked upon the duty as one of the unnecessary evils incident to the service, to be quickly and easily got through with, they now at once sat in longer daily session; predicted weeks, instead of days, as the life of the Conference; spent evenings in committee work or in informal, but earnest, discussions and conferences; and, to a man, seemed determined each to do his utmost to get results of value.

In general, Commander Key's letter was in criticism of the design of the battleships *Delaware* and *North Dakota*, both of which are advanced in construction, and of the *Florida* and *Utah*, intended to be of an improved *Delaware* type. The various suggestions and criticisms of the letter were considered point by point; the conference recorded its voted opinion on each, and then recommended whether, as a matter of policy, a change should be made in either of the two classes. Concurrently with the consideration of the Key letter, points which were brought up by conferees or developed by the discussion received similar consideration. It should be clearly borne in mind that while a design might be recognized as faulty on a particular point, it might be voted impracticable to make a change, because of the advanced state of construction of the vessel involved, or it might be considered impolitic on account of the time that would be lost.

So far as our information goes, and so far as it is proper to use it, the points discussed and the conclusions in each case were as follows:—

- (1) It was found that the casemate armor is not sufficiently thick, leaving guns, uptakes, and supply ventilator pipes inadequately protected. It was recommended that this be corrected in future ships and that splinter-proof armor be installed around guns and as an additional protection to uptakes; and that the classes now building and planned be supplied with the additional splinter-proof armor.
- (2) A defect found in the placing of certain guns can-

not be referred to in detail. It is probably impracticable to adopt the only remedy suggested. The defect is similar to the one which Rear Admiral Evans referred to as existing in certain ships of his command.

- (3) The position of the amidship powder magazine between engine and boiler rooms and in close proximity to steam pipes was severely criticized. This cannot be corrected, except in future vessels of the type. The use of magazine refrigerating apparatus might improve matters to some extent.
- (4) It was found that guns of a certain caliber being built for these ships will probably be of less power than similar guns of similar British ships now nearing completion. It is doubtful if this can be corrected in these classes.
- (5) Certain changes in funnels and ventilator pipes were recommended to be adopted for both classes.
- (6) The Conference recommended a certain fixed rule by which to determine the proper place for both the upper and lower edges of the armor belt of future ships. It recommended a slight raising of the armor belt of the two classes. It is understood that the position of the water-line belt of existing ships was not discussed.
- (7) The placing of two of the turrets on these ships was severely criticized and the defect will not be repeated. It cannot be corrected in the present instance.
- (8) The steering engine was found to be inadequately protected by armor, and it was recommended that the defect be corrected.

- (9) It was found that certain parts of the barbettes of the 12-inch turrets lack sufficient armor protection. This defect will probably be remedied.

The conclusions of the Conference as to future design cannot properly be discussed. The votes were practically unanimous on all points discussed.

The foregoing includes mention of some points not included in the Key letter; and when it is realized that it is but a small part of all that was found to take exception to, it should be evident that our present methods of design have been producing defects that can be prevented. The foregoing must not be construed as indicating that our ships are necessarily inferior to foreign ships, for it is only partly by that standard that ours have been judged. The test has usually been as to what was essentially good and what defective. The purpose of our design should be to secure the best that is possible, not merely to avoid the errors of foreign ships.

The Conference itself really summarized its conclusions in two resolutions adopted shortly before adjournment. In one it offered its recommendation that the duty of criticizing, modifying, and recommending designs of battleships to the Department be hereafter entrusted to a special board based on the plan of the recent Conference. Such a method would practically supplant the present Board on Construction. In the other it highly commended Commander Key for the results which had been brought about by his criticisms, the resulting Conference, and the free discussion, and stated that he deserved the thanks of his brother officers for the great service he had rendered the navy.

DOCKS FOR DREADNOUGHTS

The single-caliber battleship of the improved *Dreadnought* design has now passed into the permanent building policies of the great naval powers and brought all of these maritime leaders face to face with the problem of providing adequate dock accommodations for these modern war-ships. It is one which will require as much consideration, and, for several years at least, as great an expenditure, as the construction of these vessels.

The *Dreadnought* revolutionized modern naval construction. The passing of the experimental period in the development of larger and more powerful ships of this new type necessitates just as radical a revolution in the matter of docks; for without suitable accommodations

Dreadnoughts, like all other marine craft, would soon be barnacled into utter uselessness. Four hundred and five hundred foot docks afford ample accommodation for older battleships, but are obsolete when it comes to docking vessels five hundred feet long. The dock of to-day should be from 700 to 900 feet long and 110 feet in width.

Naval authorities all over the world seem to agree upon these figures, and the leading admiralties, also, realize that stone and concrete construction of this character must be quickly undertaken, in spite of the reluctance of some Cabinets and governments to provide the necessary funds for the completion of the *Dreadnought* evolution. Germany is building three large *Dreadnought* docks at



NEW DRY DOCK AT THE LEAGUE ISLAND NAVY YARD, PHILADELPHIA

Showing the status of construction on August 1, 1905, and giving an idea of the concrete and granite walls before the surrounding hollow was filled with earth. The dam in the foreground protected the work from the Delaware River during building operations. The circular building nearest the dock is the pumping house; beyond that are the shops of the navy-yard. This is the second and latest dock built at League Island. It was completed in 1907 and is now the largest government naval dock in actual use in the country. It is 754 feet 7 inches on coping; 725 feet 10½ inches on floor from head to outer sill. The new Puget Sound dock will be larger, but is only just begun. League Island is one of the few Atlantic Coast navy-yards where there is plenty of room for dock construction, most of the other yards being congested for space.

Wilhelmshaven, so that they may be in close proximity to the North Sea, which is just now the pivotal consideration in the naval projects of the principal European powers.

The United States Congress will be brought to a realization of the vital importance of the dock problem and its prompt solution after the *Delawares* are launched. Americans have gone ahead rather rapidly during the past decade, increasing the units and aggregate displacement of fighting craft, but have been imprudently negligent in the development of auxiliaries and other adjuncts, which are as essential to sea power as valor and gun power. America has barely emerged from the era of the 500-foot dock into that of the 750-foot dock, while Germany and

its British neighbors across the channel are developing the 850-foot dock. This refers solely to naval docks, which are the result of governmental rather than private enterprise.

The general tendency of modern shipbuilding—both naval and commercial—is toward the building of larger vessels. Not only is this true of first-class battleships and battle-cruisers intended for the fighting line, but also of smaller vessels, especially the destroyer type. The battleship has increased greatly in length, and grown wide in beam, with draught largely limited by available depths of harbor entrances and the Suez Canal. In Japanese naval circles, where there is not great need for considering the



BATTLESHIP KEARSARGE IN THE NEW LEAGUE ISLAND DOCK

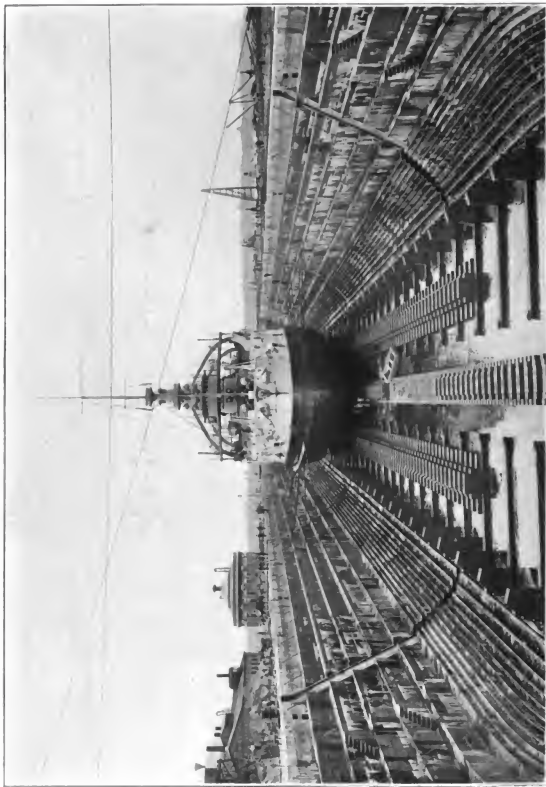
The first vessel to be docked in the new dry-dock at League Island was the battleship *Kearsarge*, on July 31, 1907, the date upon which this photograph was taken through the courtesy of officials of the yard. The vessel has just entered the dock, and this is a view of the stern of the ship taken from the direction of the Delaware River front. On rafts around the *Kearsarge* men of her crew are seen scraping and scrubbing her hull. They have already cleaned and brightened a band four feet wide around the vessel and are waiting for the water to be lowered in the dock so as to uncover four more feet of hull. The water is lowered gradually, not suddenly, and the men do this work while the rafts slowly descend along the sides of the vessel, as the water is lowered in the dock. This simple process does away with the erection of scaffolding around vessels when they are docked. Both this picture and the one on the opposite page bring out in clear and distinct detail the turrets, cranes, dock, superstructure, and other features of the *Kearsarge* as she looks when viewed from astern.



ANOTHER VIEW OF THE KEARSARGE AT LEAGUE ISLAND

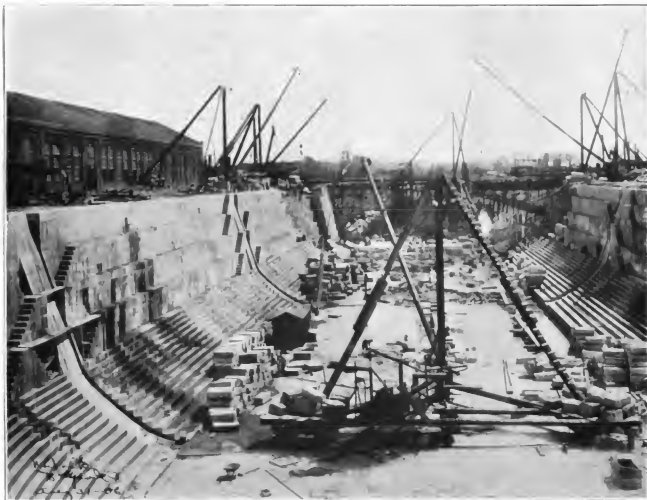
This photograph, taken on the same day as the one on the opposite page, shows a stern view of the *Kearsarge* after entering the new dry-dock at the League Island navy-yard. The water has been pumped out of the dock, the sides of the vessel have been cleaned by the men on the rafts, and the hull of the ship is seen resting on parallel rows of keel-blocks, one row under the main keel in the center and a row under each docking keel on either side.

In docking a warship these keels are first set so as to conform to the keel lines of the vessel, the blocks being set differently for various vessels. Then the water is turned into the dock, the caisson (or gateway) is floated away, and the ship enters. After that the water is again pumped out by powerful machinery, leaving the vessel in the position shown in the photograph. Just under the port propeller shafting two men may be seen at work. This gives a good comparative idea of the enormous size of the propellers of a modern twin-screw battleship.



THE LARGEST COMPLETED DOCK IN THE UNITED STATES NAVY

This is the new dry-dock at the League Island navy-yard as it looks since its completion. This picture was taken August 1, 1907, with the battleship *Kearsarge* resting within the dock. Besides showing the dock in detail, it gives an idea of the general shape of the hull and superstructure of the *Kearsarge* as viewed from the head of the dock and looking across the bow of the ship toward the Delaware River. On the left may be seen the circular pumping house and in the distance the opposite shore of the river. The granite steps on either side of the dock are used by workmen entering or leaving; material is slid down the inclined sluice-ways, which interrupt the granite tiers at regular intervals.



THE NEW NAVAL DRYDOCK AT THE NORFOLK NAVY-YARD

This also is a concrete and granite dock and is the largest of the three at the Norfolk navy-yard. While it is about two hundred feet shorter than the largest docks at League Island and Boston, it is wider at the entrance than either of the former, and, with the exception of the newly-finished dock at the Charleston navy-yard, this dock is the widest in the navy. It measures 550 feet long on the coping, from head to outer sill, and 523 feet long on the floor, head to outer sill. The new Norfolk dock was commenced in 1903. Three years later, on September 4, 1906, the progress of the work was as shown in the above picture.

despatch of the Mikado's warships through the Egyptian link between the Orient and the Occident, there is no such handicap upon naval constructors in consideration of warship draught. Their latest battleships—the two *Satsumas*—have a designed draught of 27 feet 6 inches, as compared with 26 feet 6 inches in the *Dreadnought*.

United States naval authorities no doubt realize the im-

portance of solving the dock question, but Congress has been slow in the appropriation of funds for that purpose. Some legislators seem to think that the appropriation of approximately \$2,000,000 for a dock is ample provision; but several such appropriations make only a drop in the bucket, compared with what should be spent if thoroughly adequate docking facilities are to be obtained.



BUILDING THE NEWLY FINISHED NAVAL DRY-DOCK AT NORFOLK

This photograph was taken November 1, 1906; and shows the massive construction, as well as the complexity of detail involved in the construction of a dock of the 550-foot type. The site after excavation is surrounded with the heavy timber construction, against which the concrete backing is built, and against this wall of concrete the heavy granite blocks, each accurately cut according to close mathematical calculation, are laid. In the foreground work is progressing on the pumping-well. Comparison of the workmen with the individual blocks of granite used gives an idea of the size of those heavy pieces of lining material.

Great Britain embarks upon these projects in a more far-seeing manner. Instead of voting half the sum required for an up-to-date dock, the British Parliament provides for such facilities in a much broader way and authorizes great dockyard facilities on a large scale. The improvements that have been in progress at Devonport are an example. They are being followed by the work

begin last September upon the extension of the Haul-bowline Dockyard, and by the elaborate scheme just commencing at the new North Sea naval base of Rosyth, where \$40,000,000 will be spent before the entire works are completed, when there will be a basin at Rosyth that will accommodate nearly two dozen battleships and armored cruisers of the largest class, besides a great tidal



ANOTHER VIEW OF THE NEW DRY-DOCK AT NORFOLK

This photograph, taken in the spring of 1907, shows the completed dock, as seen from the same point as the view on the opposite page. It shows the finished construction as seen from the side of the entrance upon which the pumping-well is situated, the massiveness of the entrance, the entrance sill against which the huge steel caisson fits tightly in place under the pressure of water from the outside of the dock, and five rows of keel blocks.

lock and dock 850 feet long, 110 feet wide and 36 feet deep over the sill at spring low water.

This is the regulation size of all of the proposed new *Dreadnought* docks. The present dock at Hanlbowlne is only 426 feet long on the blocks. While wide enough and deep enough it will not take the *Dreadnought* or the new *Invincibles*, and for this reason it is being lengthened. When complete it will be the only dock in Ireland capable

of accommodating the all-big-gun big ships. Arrangements are being made at Portsmouth for the building of the new *Dreadnought* dock there. It too will be 850 feet long, 110 feet wide, and about 33 feet over the sills.

Not only has the new American navy outgrown dock facilities already provided, but also all that are authorized and building. When these are finished, additional docks will be urgently needed for the ships, especially the *De-la-*



THE NEW NORFOLK DOCK LOOKING TOWARD THE WATER-FRONT

This picture, taken last year, gives a good general view of the new dry-dock at the Norfolk navy-yard as it appeared shortly before completion. It shows the completion of the concrete body of the dock, with the heavy granite facing laid, the completion of the pump-well, and the installation of the oak blocks and various fittings. The interior of the pump-well is waterproofed with hydrolithic cement. Under date of November 26, 1906, contracts were let for the pumping machinery. This, with the caisson, has now been delivered. In March of last year the contracts were let for the construction of the timber approaches and the necessary dredging for the entrance.

tores and their successors. Only four docks longer than 575 feet have been provided for the American Navy. These four were authorized in 1898,—ten years ago,—at the beginning of the war with Spain, before the *Dreadnought* type was even dreamed about. The largest of these docks, at League Island, measuring 754 feet long, about 103 wide, and 30 feet over the sills, is just fin-

ished. Those at Boston and Portsmouth, measuring 750 feet long, about 102 wide, and 30 over their sills, are finished, but the fourth, at Mare Island, measuring 752 long, about 102 wide, and 30 over the sill, is not half finished, although authorized ten years ago. Three of these only—those at League Island, Boston, and Mare Island—can be used, that at Mare Island being completed. Contracts

have been let for a very large dock at Puget Sound, to measure 820 feet long, 115 wide, and 38 deep,—the largest American naval dock.

Compare this with British improvements of a more extensive character at Devonport and with work being done at Wilhelmshaven under auspices of the German Imperial Navy. The whole scheme for the first large part of the new British development at Rosyth was originally set for ten years. Now that the work is about to be started under Parliamentary votes, the British, spurred on through fear of German rivalry, will finish it within eight years; in other words, a decade to provide basin and dock accommodation for twenty-two *Dreadnoughts* on the North Sea Coast, where there is now only one dock, that a private one, for ships of that size. It is understood there are only thirteen government docks, besides six colonial and private docks, in the entire British Empire that can take the *Dreadnought*. This is far from adequate.

Let us consider the dimensions of the principle type of *Dreadnoughts* now building. According to the most authentic data available the measurements of the ships are as follows:—

The original British *Dreadnought* is 490 feet between perpendiculars, 82 feet beam, and her mean designed draught was 26.5 feet.

The next British *Dreadnought* type, comprising the *Bellerophon*, *Temeraire*, and *Superb*, all of which have been launched and will soon be ready for use, measures 490 feet long, 82 feet beam, and 27 feet draught, being approximately the dimensions of the original, although a few hundred tons heavier.

The British 1907 program *Dreadnoughts*—the *St. Vincent*, *Collingwood*, and *Vanguard*, with all of their keels laid and material being rapidly worked into their hulls, are to be 500 feet long, 84 feet beam, and about 27 feet draught.

The two American *Delawares*,—the *Delaware* and *North Dakota*,—also building, are to be 510 feet long, 85 feet 2½ inches beam, and 26 feet 11 inches draught.

The first German reply to the British *Dreadnought*, the battleship *Nassau*, launched at Wilhelmshaven, measures 472 feet in length, 82 feet 9 inches beam, and will draw 26 feet.

The British armored-cruiser *Invincibles* (the *Invincible*, *Indomitable*, and *Inflexible*)—all of which are really battle-cruisers, since each is to have a main battery of eight 12-inch guns—are 530 feet in length, 78 feet 6 inches breadth of beam, and 26 feet draught. These cruisers gain in length what they lose in beam as compared with the *Dreadnought*.

The new German cruiser "*F*", the contract for which has recently been awarded to the firm of Blohm and Voss of Hamburg, is to displace 19,000 tons and will measure 560 feet in length, 85 feet beam, and have a draught of 27 feet.

The French big-gun ships of the *Danton* class, six of which are building, will have a length of 475 feet, with a beam of 84 feet 3 inches, and 27 feet 9 inches draught.

The *Satsuma* and *Aki*, which represent the first Japanese type of the *Dreadnought* class, both launched a year ago and now completing, each have a length of 482 feet, beam amounting to 83 feet 6 inches, and 27 feet 6 inches draught.

The new Japanese armored cruisers *A* and *B* will have a length of 537 feet, a breadth of beam of 79 feet 6 inches, and about 27 feet draught.

The new Brazilian battleships now building in the yards of the Vickers and Armstrongs in England are understood to have a designed length of 500 feet, with 82 feet beam, and 27 feet draught.

Necessity for the consideration of all phases of dock accommodations is pressing. Unless the single-calibre ship of the *Dreadnought* class is to be abandoned in favor of some radically different type of smaller displacement, it will be cheaper in the end, and more prudent in the beginning, to build such docks soon. It will be more economical to construct them large enough in the beginning, than to resort to the penny-wise-pound-foolish policy of building them not quite large enough and then to discover that they must be increased in dimensions.

The Suez Canal is not deep enough for the growing size of vessels; it is to be deepened at vast expense. The Kiel Canal is not large enough for marine progress; it must be widened and deepened, and the Government has now embarked upon that vitally important task. With these object lessons striking home, America, although sluggish in naval dock development, seems to have taken both time and money by the forelock in the elaboration of the plans for the canal across the Isthmus of Panama. It would have cost thirty or forty millions more to have widened the Panama locks after they had been built. The locks of this canal, originally planned to be 900 by 95 feet, have been increased to 1000 by 110 feet. This newly established width of 110 feet is the width the British have settled upon for their new naval docks at Portsmouth, Devonport, Rosyth, and Haulbowline.

There can be no doubt of the importance of providing adequate dock, canal, and other necessary accommodations for the many *Dreadnoughts* now under construction for all the great powers.

THE AGE OF WIRELESS

There are significant indications of progress in the naval uses to which the long-distance transmission of wireless messages have been put during the past year. Ever since the Atlantic battleship fleet left Hampton Roads, it has been in practically uninterrupted communication with shore, either directly or through other vessels that transmitted the messages to the shore. The British armored cruiser *Indomitable*, both going to and coming from the Quebec Tercentenary, was always in touch with either Ireland or Newfoundland. The Kief station of the wireless telegraph line that the Russian Government is constructing to connect Sebastopol with St. Petersburg, has succeeded in picking up Marconi transatlantic messages, including several press dispatches sent from the American side, at Glace Bay, the distance between stations being approximately thirty-seven hundred and fifty miles. Following up their success in receiving admiralty messages from their warships off the coast of Morocco, the French have turned their attention toward the establishment of a high-power wireless station on the Eiffel Tower. A somewhat similar central station has just been constructed on top of the buildings at Whitehall by the British Navy, and was successfully used by the Admiralty in directing recent maneuvers of torpedo craft in the North Sea. Marconi is planning to erect a station at Coltano, Italy, to send messages to any part of the globe.

British naval authorities are rather proud of the fact that the Prince of Wales was able to exchange messages constantly with other members of the royal family on both the homeward and outward voyages of the *Indomitable*. This was rendered possible through the installation of powerful wireless apparatus on the cruiser-battleship, with the aid of the high-power stations of the Marconi Company at Clifden in Ireland, and at Glace Bay in Canada. On the outward voyage the *Indomitable* kept in touch with Clifden until she lost range of that station, and then sent her messages to Glace Bay, whence they were retransmitted back to Ireland. With her own power she was able to transmit to a distance of sixteen hundred miles, and a message sent from this distance was taken in Sicily. The vessel herself was never out of touch, though it was necessary to use high-power shore stations to send dispatches to her.

Impressive as this performance is for British enthusiasts, there is nothing very remarkable in the ship-and-shore wireless communication of the *Indomitable* when compared with what the American Navy has been doing

for several years. As far back as the voyage of President Roosevelt to Panama and Porto Rico, two years ago, messages from the warship conveying the President were picked up at the Washington Navy Yard from the vicinity of Porto Rico. Prior to that there were other long-distance wireless records in the navy, and during the President's former voyage from New Orleans to Hampton Roads, the special service squadron of Rear Admiral Brownson was in wireless touch with Washington and Norfolk from the keys of Florida.

All of these records have been excelled during the long cruise upon which the Atlantic battleship fleet is engaged. Last March the Navy Department received a telegraphic message from its wireless station at Pensacola, which had been in direct communication with the American fleet on its way to Magdalena Bay,—a remarkable performance, considering that the wireless had to cross the Gulf of Mexico, then the State of Texas, part of Mexico, and again several hundred miles of ocean. This particular message was sent from the late Rear Admiral Thomas on the night of March 8, and, after asking for important news from home, said: "The position of the fleet at this moment is latitude 14° 37' north, longitude 102° 01' west." The fleet was then about nine hundred miles from Magdalena Bay. Since leaving San Francisco, on July 7 last, the Atlantic fleet, under command of Rear Admiral Charles S. Sperry, has not only been in constant touch with land by wireless, but has established new records. On July 12, five days out from San Francisco, the position of the fleet was given by wireless to Honolulu as 30° 1' north latitude, 141° 3' west longitude, or ten hundred and eighty miles from Honolulu. Wireless messages transmitted by Rear Admiral Sperry to the *Nebraska*, to be relayed by that ship to San Francisco,—the *Nebraska* having been detained at quarantine at San Francisco and having left there two days after the other ships of the fleet,—were picked up by the wireless station at Honolulu. On the following day wireless word was conveyed to Honolulu that the fleet was five hundred and sixty-five miles distant from that port, with the *Nebraska* only fifty miles behind the other battleships. After leaving Honolulu en route for New Zealand, record wireless was received by the chief operator and his assistants at the Government wireless station at Point Loma, California. They communicated with Rear Admiral Sperry's flagship, the *Connecticut*, a little after midnight the morning of July 24. The *Connecticut* answered the first call of the shore station, and, after identifying each other, the battle-

ship stated that she was then in longitude 165° west, and between 9° and 10° north latitude, on her way from Honolulu to Auckland, New Zealand. Calculation shows that particular mid-ocean point to be twenty-nine hundred miles from San Diego. The battleship reported everyone well, and stated that the static electric power was so strong, because of the damp night, that she could easily make out the words from Point Loma. Several days later Honolulu was still in touch with the fleet, in latitude $2^{\circ} 28'$ north, and longitude $165^{\circ} 15'$ west, at a distance of twelve hundred and fifty miles. Announcement was made at the Navy Department, on August 3, that a wireless dispatch from Rear Admiral Sperry, via the *Glacier*, at Suva, Fiji Islands, dated August 2, gave the position of the battleships as $15^{\circ} 04'$ south latitude, and $172^{\circ} 04'$ west longitude. At the same time messages were sent from the *Vermont* a distance of fourteen hundred and eighty miles to the repair ship *Panther*, lying several hundred miles west of Auckland, between the Samoan and Tip Islands. From the *Panther* the message was relayed to the *Yorktown*, which relayed it in turn to

the *Glacier*, in the harbor of Suva. From there the message was sent, by cable, from the Fiji Islands to British Columbia, and thence across the American continent to Washington.

With such a chain of wireless communication from California to Australia, and records being made wherever high-power wireless stations are erected, ashore or afloat, it is evident that the introduction of long-distance wireless must bring great changes in the strategic distribution of fleets. This feature of the question is receiving serious attention from nearly every important admiralty office. The extent to which wireless telegraphy will affect future naval movements is yet to be determined. From a military standpoint, it has both advantages and disadvantages, for it remains to be ascertained to what extent the use of wireless may foil the plans of admirals in the maneuvering of their fleets. Although opposing commanders would naturally use different codes, so that their messages might not be read by the enemy, the taking of messages, even though they could not be deciphered, would reveal the presence of the enemy, if nothing else.

SERVICE ITEMS

THE BATTLESHIP PLANS

Plans for the two new 20,000-ton battleships—the *Utah* and the *Florida*—authorized at the last session of Congress are now in the hands of President Roosevelt at Oyster Bay, and when they are sent back to Washington arrangements will be made for the actual work of construction. When Congress was in session it was thought that work on these vessels might commence shortly after the beginning of the new fiscal year, on July 1, and in his appeal to the Naval Committees for an immediate appropriation to accompany the authorization for these vessels Secretary Metcalf asserted that if the money were granted at once no time would be lost in the beginning of work on the two battleships. The House Naval Committee declined to recommend such an appropriation, mainly for two reasons: First, because it had not been the practice to make the first appropriations of money the same year the granting of authority for construction was made, and the House sustained this contention. There was also a rather strong feeling among members of its Naval Committee that it would be better to allow the plans for the new American *Dreadnoughts* to germinate a while among the designers, in order that latest practices might be incorporated into the plans. The Senate took the opposite

view, and appropriated the funds urged by the Administration.

Since then the Newport Conference has been held, and, owing to the desire to receive the views of the conference before beginning the *Utah* and *Florida*, the laying down of both battleships has been delayed. It is not now believed that there will be much longer delay. Whatever the decision of the Newport Conference, much good is bound to result from the conference of nearly fifty officers—line and staff—whose views were sought in the discussions held during the latter part of July and early in August at the Naval War College. The little delay that has been occasioned is well worth while, if results obtained at Newport can be advantageously worked into the newer ships. Nothing official has yet been announced respecting the ultimate outcome of the conference. That result has now been embodied in a report, which was signed by a representative of the War College, a representative of the General Board, and another officer, and it was forwarded to the Navy Department about August 21. Shortly before that Naval Constructor Robinson, who attended the Newport Conference with the plans for the proposed new vessels, returned to Washington and work was continued on the plans for

those vessels. As a result of the conference, certain changes had to be made in the designs.

After going over the report of the Newport Conference the Acting Secretary of the Navy, Mr. Newberry, on August 25, forwarded the recommendations, along with the suggestions brought out at the conference and an indication of how the votes of the officers stood on all of the submitted questions, to President Roosevelt, who since that time has summoned various officers to Oyster Bay for conferences respecting recommendations which they had made at Newport. Every officer invited to the Newport Conference was allowed to vote on each of the questions on the various points of construction, and their respective attitudes have therefore been recorded. All of the officers who were there have also been placed under service injunctions of secrecy and told that they must not discuss the matters which were under consideration at Newport except with those who officially participated in the conference. Hence, while there have been conflicting statements respecting the result of the conference and varying claims that either the staff or the line officers won their contentions, or that the older or younger elements of the service carried their leading points, nothing absolutely definite has yet been published concerning the outcome.

When the Newport report went to the President on August 24 it was understood at the Department that the plans would be back in Washington from Oyster Bay about September 5, and that the advertisement for bids for the construction of the *Utah*, which is the one of the two new battleships authorized last year to be given out to private contractors, would be issued about September 10. Allowing sixty days for the contractors to examine the plans and formulate their bids, they would be opened at the Department about November 10, and the actual laying down of the vessels would commence about December. President Roosevelt may either approve the report without change, adopt it with changes, or reject it altogether, although it is hardly likely that he will take the latter course. As matters now stand, the *Florida* and the *Utah* will be put on the stocks about the same time. While no proposals for the construction of the *Florida* have to be issued, because she is to be laid down and wholly constructed at the Brooklyn Navy Yard, she will probably not be started before the *Utah*. About sixty days will be required to get things in shape at the navy yard for the work of construction. Certain yard changes will have to be made around the building slip, which will have to be made about one hundred feet longer than that which was required for the making of the *Connecticut*—

the last battleship to be constructed at the Brooklyn Navy Yard.

OTHER NEW CONSTRUCTION

This fall will be a busy period in naval construction. Aside from the effort to have work on the new battleships under way as quickly as possible, work will be pushed on the flotilla of torpedo craft, as well as on the colliers and submarines which were authorized at the recent session of Congress. Bids will be opened September 1 for the construction of the ten new torpedo-boat destroyers that were authorized last winter in connection with the battleship program. They are to burn oil-fuel, and their maximum cost will be about \$800,000 each. It is understood that each have a displacement of about 750 tons and a minimum speed of 29½ knots. They will be of about the size of the British river class, but will not have the speed of the 33-knotters of the British Tribal class. Besides these, there are now under construction the five destroyers, each of 700 tons displacement, two by William Cramp & Sons, two at the Bath Iron Works, and one at the yard of the New York Shipbuilding Company. Proposals for constructing the eight submarine boats, over the type of which there was a bitter struggle in Congress last winter, will be opened on November 2. They are to be built according to the constructor's designs, and the plans for these submarine craft and the destroyers are being carefully guarded at the Department, very little having been announced as to their characteristics.

Tenders for the three new naval colliers will also be opened at the Department on September 1. Bids for these colliers were opened July 1, when the Maryland Steel Company of Sparrow's Point named the lowest figure, that of \$364,000, for each, but all bids were rejected on the ground that none of the vessels offered were satisfactory. These colliers are to be constructed on the builder's own designs, but must meet certain departmental requirements. They must have twin screws, a speed of 12 knots, draft not exceeding 24.6 feet, and must carry 7,200 tons of coal in cargo. The machinery must be aft; there must be room for the cargo forward; and the vessels must be equipped with appliances for coaling at sea. It is hoped that the contracts for these colliers, as well as for the torpedo boats, can be let by September 10.

These are the three colliers the purchase of which was authorized by the two Houses of Congress with the general understanding that the three colliers which were built by the Fore River Shipbuilding Company for a Boston shipping company would be purchased by the Government. After referring the matter to its legal advisers,

however, the Department came to the conclusion that the wording of the Naval Act is such that the purchase of the three colliers already built is entirely optional with the Department.

In addition to the eight submarines authorized last year, for which bids are to be opened in November, there are eight other submarines now under construction at the Fore River Shipbuilding Works, in addition to the submarine of the Lake type which is being built, under certain stipulations, out of the 1907 naval appropriation.

It is anticipated that, unless there is a disarrangement of present expectations, there will be under construction for the United States Navy, on January 1 next, six battleships, all of the all-big-gun type, fifteen torpedo-boat destroyers, seventeen submarines, seven colliers (including the *Vestal* and *Prometheus*, which are nearly completed), and the tugboats *Patapsco* and *Patuxent*.

THE COMMAND OF THE NORTH DAKOTA

As a reward for his excellent administration of the United States Naval Academy at Annapolis, it is understood that Captain Charles J. Badger, the superintendent of that institution, has been tentatively offered by the Navy Department his choice of the command of one of the first two of the *Delaware* type of vessels. Since it is expected the *North Dakota* will be launched about December and will be completed first, this choice will probably be the one made by Captain Badger. Last spring Captain Badger asked to be relieved at the close of his term at the Naval Academy, in order that he might obtain a battleship command as early as possible, so as to be fitted for a flag command upon reaching the grade of rear admiral. His services were needed at the Academy, however, where he has been importuned to remain the full two years. After the close of the next academic year, unless the present tentative plans are changed, Captain Badger will be granted an extensive leave, after which he will be ordered to his ship for duty in fitting her out, and when she is ready to be placed in commission he will take active command.

SUCCESS IN RECRUITING

One of the most favorable aspects of the present naval situation is the progress which is being made in recruiting men for service in the navy. At the end of the past fiscal year, on July 1, the total strength of the enlisted force of the navy was about 38,300 men, out of a total authorized strength of 38,500 enlisted men. On that date the service was within about two hundred men of its full quota, and recruits were coming in so rapidly that the

work of recruiting was stopped before the end of the fiscal year. The last session of Congress authorized an addition of 6,000 enlisted men, bringing the total authorized enlisted personnel up to 44,500 men. Since the first of the new fiscal year the number of additions each week runs from 351 to 403. The latter number was reached about the middle of August. With the additions that have been made since the beginning of the new fiscal year the total number of enlisted men in the navy was toward the end of August, approximately 41,000. This increase in enlistments in this branch of the military service is attributed to several causes. The voyage of the Atlantic battleship fleet and the constant reminders of that voyage in the daily and magazine press have inspired enlistments. Besides this, great signboards in centers of population have been covered with attractive posters inviting enlistments, moving pictures have been used to illustrate life in the navy, and thousands of pamphlets showing life in the service have been distributed.

THE COLORADO ASHORE

The 13,680-ton armored cruiser *Colorado* ran ashore at Double Bluff, in Puget Sound, twenty-five miles north of Seattle, at 10 o'clock on the morning of August 15 while proceeding from the Puget Sound Navy Yard to San Francisco, under command of Captain Edmund B. Underwood. Double Bluff, where the accident occurred, is not along the Pacific shore of the State of Washington, but is a precipitous place on the southern shore of Whidby Island, almost directly opposite Point No Point, in the tortuous reach of water extending northward from the city of Seattle toward the Strait of San Juan de Fuca, which offers a broad roadway westward from Port Townsend to the sea. The *Colorado* had been undergoing her annual repairs at the Puget Sound yard, and was on her way toward San Francisco, preparatory to sailing with the seven other armored cruisers of Rear Admiral Dayton's Pacific fleet for Hawaii and Samoa on August 24. There was very little fog in the sound until Point No Point was reached. Suddenly the forward lookout shouted an alarm, and almost instantly there came the shock of the cruiser grounding. The engines were reversed, but failed to move the vessel, and the accident was then reported by wireless to the Bremerton Navy Yard. The naval tug *Naraja* and the revenue cutter *Arcata* were dispatched, respectively, from the Bremerton yard and Port Townsend to aid the cruiser, which was ordered back to the yard for examination and repairs. The cruiser was floated late in the afternoon, and upon her return to Bremerton was found to be so badly injured

that she could not be repaired in time to leave San Francisco on August 24 on the Samoan voyage. A dispatch to the Navy Department from Captain John A. Rodgers, commandant of the Puget Sound yard, stated that her plates were dented in three or four places on the starboard side and the starboard docking keel was considerably damaged. The repairs, which were immediately ordered, are expected to require about thirty days for completion, and, when completed, the *Colorado* will resume her place in the first division of the armored cruiser fleet, with the *West Virginia*, *Maryland*, and *Pennsylvania*. She will probably meet the other ships at Honolulu about October 1, after their return to that port from Samoa.

NAVAL PRISON EXTENSION

Proposals are to be opened by Rear Admiral R. C. Hollyday, Chief of the Bureau of Yards and Docks, on September 5, for the naval prison extension at the Portsmouth (N. H.) Navy Yard, for which improvement Congress appropriated \$65,000 in the Naval Appropriation Act of May 13, 1908. This extension will provide one hundred and sixty cells; and as the capacity of the naval prisons has been for some time overtaxed, the improvement will be an important one for the service. There has for some time been a tendency toward congestion in the various naval prisons, and this has been partially met by careful vigilance, by resort to the release of prisoners after the expiration of half the term of confinement, by the exercise of extraordinary clemency in deserving cases, and by a judicious remission of original sentences. Although with the increase in the personnel of the navy there has been a natural increase of general courts-martial for infractions of law and discipline, the prison accommodations have remained the same for several years. The only relief seems to be the early completion of this new naval prison building at Portsmouth. The progress on the structure has been slow, due to the failure of Congress to appropriate the necessary funds.

Proposals for the construction of the main administration building of the prison were opened in August, 1905, and the work of construction began September 2 of that year. When finally completed the prison, which is to be an imposing structure, will compare favorably with modern institutions of the kind; but until that time arrives congestion will continue at the various prison ships on the Atlantic coast. The work on the present wing was commenced March 11, 1904; and on June 30, 1906, all work appropriated for on the prison wing was completed, leaving twenty-five per cent of the authorized work un-

finished. At the same time, the administration building was fifty-seven per cent completed, but money on hand from the appropriations made just before the end of that fiscal year was not sufficient to finish the gallery and ceiling on the fourth floor of the structure. Additional estimates were necessary for this, and also for the installation and plumbing work for 160 cells necessary to complete the prison wing. The wing was completed last fall, and these 160 cells were placed in use, but this was only one-half of the number of cells designed, and it was not until last May that Congress made the appropriation of \$65,000 for the extension which is to provide 160 more cells (bringing the total up to 320), complete with fixtures, ventilators, and stairs, the whole to be erected and connected with the 160 cells now in use without interference with the prison system now in operation. The contract time for the work will be nine months, so that, through the delinquency of Congress, another year must elapse before the number of cells originally designed will be ready. These new cells will form a continuation of those already installed in the new prisoners' wing, and are to be divided into four tiers, each tier consisting of forty cells in two rows. These two rows are to be separated by a space 3 feet 3 inches wide, for ventilation and for water and plumbing pipes. The size of the cells will be 5 feet 9 inches wide by 9 feet 11 inches deep by approximately 8 feet high in the clear. A corridor about 3½ feet wide will surround each tier, except the first, which is to rest upon the first floor, which is already in place. The corridors are to be connected by a double stairway, connecting at the same time the floors and galleries of the administration building with each tier of cells. The walls, as well as the floors of the cells, are to be constructed of steel and concrete, each cell being self-supporting, so as to transmit the weight directly to the columns.

The appropriation of \$65,000 made by Congress is inadequate, and the Department has for years urged that sufficient money be appropriated for the completion and equipment of the prison. Equipment within and without the prison is of vital importance to its successful operation. This equipment includes barracks for the prison guard, for which \$130,000 was asked from Congress, but not given, and quarters for commanding and other officers attached to the prison, for which \$57,000 was asked and refused. For the completion of the prison proper \$250,000 was asked, but only \$65,000 allowed by Congress. The building is still lacking in other essential features which for some time to come will prevent the use of the whole building.

It is rather difficult to understand the attitude of Congress in so vital a matter. Last year, for instance, the number of naval prisoners in the naval prison ship *Southery*, at Portsmouth, had to be reduced from 350 to 300 for sanitary reasons and to relieve overcrowding, and the recommendations of the surgeons were that a reduction to 250 was desirable. While the prisoners were well cared for, healthy, and properly clothed and fed, the *Southery* was not suited for prison uses, besides being too small. There was the same crowded condition at the naval prison at Boston, where there have been over 200 prisoners confined in a prison normally equipped for the accommodation of only 150 men. Owing to this congestion in the different prisons it has been frequently necessary for the Department to release prisoners who have served only half their time. This condition tends to have a bad effect upon discipline, since it has made it imperative often to discharge prisoners who have committed grave offenses.

The original policy of the Department in planning this prison at Portsmouth was that other prisons on the east coast should eventually be done away with, and its design and location contemplated the enlargement of its capacity by the addition of wings.

ENLARGING THE NEW BROOKLYN DOCK

With an increased Congressional appropriation and new contractors engaged, work has been resumed on the new graving dock at the Brooklyn Navy Yard, which was originally commenced in 1905, but has been greatly delayed through the troubles experienced by the old contractors. For this, the fourth and the most modern of the docks authorized, the limit of cost has now been raised to \$1,500,000, so as to provide for changes of design amounting in the aggregate to about \$417,000. All really modern docks are now being lined with granite, and \$264,000 of the increased cost will be devoted to providing granite lining, instead of concrete, for the Brooklyn dock. Enlargement of the dock and changing its pump will add another item of \$121,000 to the cost, and \$32,000 will be used for additional blocking and fittings. Difficulty had been experienced in the past in persuading Congress to appropriate enough for an adequate number of really modern docks for the navy. Until the last session most Congressmen seemed to believe \$1,000,000 sufficient for a single dock; but when it is understood that a modern *Dreadnought* now costs about \$10,000,000 to build and \$1,000,000 annually for maintenance, and has an average life of only about twenty years, while such vessels cannot

get along without adequate docking facilities, \$2,000,000 is not too much to be spent on a dock that will last many times as long: two of the Government docks in use to-day are over seventy years old. The tendency and desire everywhere is for larger docks. They are the hospitals of the big ship, and there should be plenty of them for use, in peace or war. That there are not larger docks and more of them is attributable to two main causes,—first, to the failure of Congress to fully grasp the situation, and, secondly, to the difficulties experienced with contractors after inadequate appropriations are made.

While the new Brooklyn dock will be large enough to accommodate a vessel of the *Delaware* type, it will not be as large as it would have been were the site larger and ample funds provided. There is a street at the head of this new dock, and it is impossible to build to the length desired. There is room elsewhere in the navy yard for an even larger dock, and Congress will within the next few years be urged to authorize the construction of another dock for the Brooklyn yard on such a site. While the estimated cost of the changes authorized for the dock now being built there is \$417,000, the history of dock construction at that navy yard, the treacherous character of the soil, and other considerations, made it advisable to fix the increase of the limit of cost at \$500,000, with the understanding that the full amount of \$1,500,000 would not be spent unless it was needed. No actual appropriation was, however, required at the last session of Congress and none was made, because there was a balance of \$553,073.65 remaining from former appropriations. This is the dock over which there was trouble with the original contractors last summer. As the law originally stood, the construction had to be done by contract, and efforts to place a new contract were for a while unsuccessful. An award was made in March last to a contractor who, until the latter part of April, had failed to execute the required contract and bond after the lapse of a stipulated period. This brought the Bureau of Yards and Docks face to face with the construction of the dock itself, and Congress was induced to change the original authorization so as to allow the completion of the dock by either contract or day labor. Afterward a responsible contractor was obtained and the work has now been started.

Under the original design of 1905 the dock was to be built of concrete, with a concrete facing. It is now the policy to line all of our new docks with granite, and this is especially necessary in the climate of New York. The experience with the concrete-faced No. 2 dock at the same yard was exceedingly unsatisfactory, while the

granite-lined dock No. 1, built in 1841, has required practically no expenditure for repairs to the dock structure. As originally designed and commenced, the Brooklyn dock was 542 feet in length from head (inside of coping) to sill; this has been changed to 540 feet. The length on floor from head to sill has been increased from 513 to 516 feet; and the length from the outside of the dock at head to end of apron on the center line will now be 620 feet, instead of 563 feet. The dock as first planned and as it now stands would just take a ship of the *Delaware* class, with an allowance of two and one-half feet clearance at each end, based on an estimated overhang of twelve feet for the caisson, which has not been designed. In the opinion of Rear Admiral Hollyday, of the Bureau of Yards and Docks, the dock ought to have a clearance of five feet for each end of the ship, not only for ease in docking, but to allow for any minor inaccuracies or changes in the construction of the dock or ship. The maximum length of a dock which can be constructed on the site will take a ship 560 feet long over all, with five feet clearance at each end, or a ship forty-one feet longer than the *Delaware* class. The depth over the sill in the original design was 31 feet mean high water; with the new design it will be 33 feet 6 inches, and 31 feet over the keel blocks, instead of 30. The upper keel blocks can be removed and the full depth over sill obtained. This additional depth would be necessary for docking ships in damaged condition. In the original design the width of entrance at coping was to be 103 feet 10 inches; this will now be at least 104 feet. The least width of entrance at

mean high water will now be 103 feet, instead of 101 feet; and the revised width inside of coping in the body of the dock will be 126 feet, instead of 130 feet. The shape of the entrance has been slightly modified, to provide for the increased depth over the sill and to admit a ship of beam to correspond with the maximum ship which the dock can take. The maximum draft of a ship that can get into the present dock at mean high water, allowing six inches under the keel, is 30 feet 6 inches, beam 86 feet; with the new design the draft is to be 33 feet, beam 86 feet. Drawing 29 feet of water, the old design will take a ship of 86 feet beam, and the new design a vessel of 90 feet beam. The original design contemplated the construction of a pump well, partly in the dry-dock wall, with the motors below the coping level. This practice is now considered objectionable. It is thought better to construct the pump well separate from the dock structure and at some distance from it, with the pump house and motors above ground. This opinion is thought to have been confirmed by the recent experience with the pump well for the new No. 3 dry dock at the Norfolk Navy Yard, which is in the dry-dock structure and entirely below the coping level. Increase in size of warships, and consequently in the range of docking keels, requires additional blocking over that contemplated in the original design. This blocking, together with conduits for electric light and air to the bottom and sides of the dock, and other fittings, are necessary for a satisfactory dock structure along modern lines, and will be provided in the new Brooklyn dock.

FOREIGN NAVIES

GREAT BRITAIN

THE A9 ACCIDENT

What might have been a serious and fatal accident was narrowly averted aboard the British submarine *A9* on July 14, and was converted into merely a minor mishap by the heroism of the craft's officers. This submarine belongs to a series of ten of the most modern underwater vessels of the British Navy, designated *A5* to *A14*, respectively, each of which displaces 204 tons submerged, the last of the type being completed early this year. The submarine was one of a flotilla of seven such boats which were on their way from Portland to Dover, accompanied by the second-class cruiser *Aeolus* as their parent ship. While they were passing Folkestone about noon of the

day of the accident it was observed that there was something wrong with *A9*, which was gradually falling behind. When the *Aeolus* went back to ascertain the cause, it was discovered that there had been an escape of gasoline and that out of a crew of eleven men, including two officers, six were overcome by fumes, while five were affected but did not become unconscious. The men below were the first to feel the effects of the fumes and dropped at their posts. When the officers, Lieutenant C. H. Warren, who was in command, and Lieutenant E. M. Groves, second in command, realized what had occurred, they left the conning tower and attempted to reach the engines. The latter officer was successful in bringing them to a standstill, but his fellow-officer was overcome. Upon the arrival of the parent ship the officers and men were speedily

removed to the *Aeolus*, restoratives and artificial respiration were tried, and all have since recovered. There seems little doubt but that for the gallantry of the officers all aboard the craft, including the officers themselves, would have lost their lives. The accident is understood to have been caused by a slight crack in a petrol tank.

Until recently every British submarine carried a case of white mice in her well. When any leakage of gasoline occurred the heavy, sickly fumes settling to the bottom of the vessel was supposed to make the mice shriek shrilly as they gasped for breath, and thus to warn the crews of impending disaster. Shortly before the *Ag* accident an order was issued by the British Admiralty directing the removal of white mice from submarines, and this action created some uneasiness among officers and men taking part in submarine operations during the recent maneuvers. While some thought the removal of the white mice was calculated to endanger the safety of those working the submarines, others claimed that even if the mice were used, their presence would not be very valuable, because the noise of the machinery would make it very difficult to hear anything, much less the squeak of a mouse.

A HEAVY LOAD OF AMMUNITION

More ammunition has been embarked in the new 16,500-ton battleship *Agamemnon*, sister ship of the *Lord Nelson*, than has ever been put aboard any other man of war at Devonport dockyard. The *Agamemnon* was launched at the Beardmore yard at Dalmuir, Scotland, June 24, 1906, and has just been completed at a cost of \$7,500,000. All her guns are above the upper deck. Her heavy guns are concentrated in the center of the vessel, while the smaller pieces are carried on a central platform deck extending about one-third of the length of the ship and upwards of thirty feet above the water line, giving great command on all sides of the water around the vessel. Recently the nucleus crew of the vessel have been engaged putting the finishing touches to the internal fittings of this vessel at Devonport, embarking ammunition, and generally preparing for her commissioning with the full complement of eight hundred officers and men. Although the embarkation of ammunition was greatly facilitated by the use of electric motors, which form an important part of the battleships' equipment, nearly a week had to be devoted to the handling of the heavy 9.2-inch 380-pound, and 12-inch breech-loading 850-pound shells, of which between thirteen hundred and fourteen hundred, weighing approximately four hundred tons, are stored in the shell room. An equivalent number of cordite charge and over ten thousand rounds for the 12-pounder and 3-pounder weapons were also embarked.

Blast meters for measuring the intensity of the blast of big guns have recently been tried on the *Agamemnon* and the *Indomitable*, and, when not blown overboard, have given some useful information.

THE DEFENSE OF AUSTRALIA

The visit of the American battleship fleet to Australia, aside from its political significance, will probably have an important effect upon the movement now on foot there for the development of a scheme of naval defense. Interest in the American vessels is bound to inspire the Australians with a strong desire for the development of a naval program for the defense of that colony. The plan submitted to England by the Australian Premier provides for the raising of a colonial navy of submarines and torpedo craft. One of the objections made to this scheme is that such vessels would constitute merely a harbor defense force that would not be adequate for safeguarding the great coast line of Australia, which is as great as that of Europe from Cape Sabine to Port Said. Supporters of the plans of the Premier say, in reply to this objection, that the ability of the submarine to cruise from one point to another along the coast proves that harbor defense would not be a localized one, and that an attacking fleet might be hit when least expecting it. The Australian Premier believes the opportunities for training officers and men are too limited for him to indulge in any hopes beyond the proposed flotilla. He would have this force recruited under the same conditions as the Royal British Navy, the recruits serving first in the colonial vessels and completing their training in the British Navy. In time of war they would be placed under the command of the admiral of the British Eastern fleet.

OIL FUEL AND BRITISH WARSHIPS

In a recent address before the Society of Chemical Industry, at Armstrong College, Newcastle, England, Sir Boverton Redwood said it was common knowledge that the British Admiralty was fully alive to the application of petroleum for raising steam in warships. He said that in the smaller craft of the British navy, such as torpedo boats and destroyers, remarkable results had been obtained by the employment of oil fuel with the new Admiralty burner, the Thornycroft destroyer *Tartar*, with water-tube boilers, and Parsons' turbines having developed a mean speed of not less than 35.672 on her trials, the difficulties at first experienced in obtaining smokeless combustion having been completely overcome. He said also that the larger vessels of the British navy—battleships and armored cruisers—were all fitted to burn

Important naval works are in progress at Wilhelmshaven, including large docks, with modern quays, and two sluices to make exit and entry possible at all tidal stages. In order to allow warships to pass easily, the Jade is being dredged deeper. There are two large dry docks for repairs at Kiel. Two more are being built at Wilhelmshaven, in addition to the one already there. Another will be constructed at Brunsbüttel, where the Kaiser Canal enters the Elbe; and the German Admiralty is understood to be planning the erection of a new imperial shipyard for repairs in connection with the projected dock at Brunsbüttel. This new yard will be restricted, in the beginning, to the construction of small auxiliary vessels, its usefulness being confined at first largely to dock traffic. But the Admiralty wishes, above all, to have at the mouth of the Kaiser Canal a body of trained workmen and to be sure of being able at any time to make repairs at the exit of the canal. There is on the Elbe no great naval arsenal, but the private shipbuilding yard of Blohm & Voss is there at Hamburg, and a secondary establishment of the great Vulkan yard of Stettin is being opened up on the Elbe.

On the western banks of the Elbe, almost at its mouth, Cuxhaven, a new naval base, is being developed as a base for the submarine miners, advantageously situated with respect to the mouths of the Weser and the Elbe; and extensive improvements are being made at Heligoland. Thus, with bases at Wilhelmshaven, Bremerhaven, Cuxhaven, Brunsbüttel, and Heligoland, and strong fortresses at Cuxhaven, Friedrichsort, Geestemünde, Heligoland, and Wilhelmshaven, Germany will be in a strong position with respect to any possible contingency in the North Sea.

GERMAN NAVAL TRAINING

Inasmuch as all boys intended for training in the German Navy now enter the service in the autumn, instead of in the spring, they will receive their rudimentary training during the winter months aboard the converted ironclad *König Wilhelm*, and will start on their first foreign cruise of nine months in June, instead of July, the usual preliminary cruise in the Baltic being dispensed with. Last fall's consignment of eight hundred and fifty boys and the recently entered naval cadets last June boarded the four training ships, the *Freya*, *Hertha*, *Victoria Louise* (three converted frigates), and the *Charlotte* (the last of the old cruiser frigates) and are now on their cruise.

TRIALS OF THE SCHLESSEN

Satisfactory steaming trials have now been completed by the first-class 13,200-ton battleship *Schlesien*, which

was launched May 28, 1906, at Danzig. On her twenty-four hours' endurance trial at one-fifth horsepower the mean speed attained was 12.2 knots, with 3,574 indicated horsepower. On her full-power trial, with 20,507 indicated horsepower, she attained a speed of 19.032 knots, these trial runs having been made on June 13. The *Schlesien* and the *Schleswig-Holstein*, which was launched nearly two years ago, are the last of the *Deutschland* class—the other three of which are the *Deutschland*, *Hanover*, and *Pommern*—and with their completion there are twenty-four German battleships afloat, with displacements of from 10,000 to 13,200 tons each. Following them has come a new era in German naval construction, beginning with the *Nassau*, in which the displacement has been run up substantially to 18,000 tons.

FRANCE

AN INCIDENT OF THE MANEUVERS

During the recent maneuvers in the French Navy, there occurred an incident that created some comment. Rear Admiral Le Pord had, on his own initiative, weighed anchor from Porto Vecchio, and under the plan of operations of the war game he was to unite with the other division on his side, which was to join his force from the Salins d'Hyères. Admiral Germinet stopped the movement, however, and signaled to Rear Admiral Le Pord that he had not observed orders. Admiral Germinet had in mind a tactical exercise involving a torpedo attack in the Bouches de Bonifacio and afterward the coming together of the squadron. Rear Admiral Le Pord, however, regarded the operation as a maneuver exercise to gain a strategic result, and took a course calculated to escape the torpedo flotilla.

TRoubles OF THE DUPUY DE LOME

Considerable trouble has been had with the old French armored cruiser *Dupuy de Lome*, which was laid down at Brest about twenty years ago, completed in 1893, and reconstructed and re-engined four years ago. The French Government wanted to send this cruiser of 6,400 tons displacement to the coast of Morocco, to replace the more modern armored cruiser *Desaix*, 7,700 tons, which was laid down at St. Nazaire in 1899, and completed four years ago; but her cramped quarters and poor accommodation, to say nothing of other troubles, seem to render her unavailable for such service. During recent exercises near Le Fret, on the *Grande Rade* of Brest, her electric fittings proved defective, some of her tubes burst, and her

steering gear broke down. These and other defects necessitated her being towed into the dockyard for repairs. Being armored all over, she was some years ago much admired, but cannot now compare with more modern types. She proved a bad sea boat when she went to Kiel some years ago for the opening of the Kaiser Wilhelm Canal, rolling so much that bilge keels had to be fitted to increase her stability.

DIFFICULTIES OF CONSTRUCTION

A comparison of the activity displayed in British and German navy yards with the delay in French shipbuilding plants is made in an analysis of the French naval construction situation, in a paper recently read by C. Ferrand, Chief Engineer of the French Navy, before the Association Technique Maritime, at Paris. He points out that France takes five years to build vessels which Germany can manage in three years, and Great Britain in two, but says this is only in French Government yards and not in private plants, which latter can, if not hampered with red tape, build as rapidly in France as in Germany. In France the time reckoned for the construction of a ship counts from the date upon which the order for laying it down is issued by the Admiralty to that of the entrance of the vessel into actual commission; while in Great Britain and Germany the time counts from actual laying down to completion. Frequently, in France, there is a long interval between the order and the actual keel laying, amounting in the case of the *Jules Michelet* to as much as two years and two months. M. Ferrand says that the financial question is at the bottom of French dilatoriness, the distribution of expenditure being poorly arranged. He points out, for instance, that in order to build within three years the ships that were ordered on May 8, 1906, these vessels would have to be paid from the Budgets of 1906, 1907, 1908, and 1909. By dividing the cost over four years, instead of six, the Budget would have had to be increased by about \$4,500,000 in 1906, by nearly \$10,000,000 in 1907, and by about \$9,000,000 in 1908. Since this could not be done, the French Navy has to wait until 1909 and 1910 before there will be allotted to shipbuilding yearly payments such amounts as will allow really active work in the construction of those vessels. Sometimes through lack of available funds the activity of the yards has had to be restricted. The remedy suggested by M. Ferrand is to include the construction of new warships in a special Budget, as in Germany, so that when a new vessel has been voted the funds required for its completion would run no risk of being refused. He also points out that the French Navy does not proceed on rational lines

in its letting of orders; that, although it requires but twelve months to build hulls, the orders for them are given first, and then there is a long discussion on the type of turrets, which take about twenty months for construction, and these are ordered at a time when they should be completed and ready for installation.

ITALY

PROGRAM FOR THE 1908 MANEUVERS

Unusual interest attaches to this year's maneuvers of the Italian army and navy, because the naval and military operations are to be combined on both land and sea—something not thus far attempted on any such extensive scale by any great power. In 1904 a large force which had embarked at Southampton was disembarked at Clacton, in the British maneuvers, for an invasion of the eastern coast of England; and Germany has undertaken similar practice, but there was no combining of naval and military operations such as would be inevitable in actual warfare. This, however, is exactly what the Italians are doing this year. Each side has a complete naval and military force. The Italian Navy, in the case of the invading side, will not only have to attend the convoys carrying their invading army, in order to assist with vessels and seamanship in technical matters growing out of embarkation and disembarkation, but will also have first to fight and neutralize the hostile fleet and solve the critical problem of when the progress of naval operations justifies the commencement of the over-sea transport of troops. On the other hand, the military work will include not only the practicing of coast defense troops, but transport over sea and disembarkation of the invading force, and the mobilization and maneuvering on the defending side, of a complete field army. In the first, or naval, stage of these combined maneuvers supreme direction, both on land and sea, is to lie with Admiral Bettolo, Chief of the Naval General Staff; but after the disembarkation of the invading army the command will pass to General Vigano, commanding the Eighth Army Corps. The maneuvers commenced August 25, and are expected to continue until September 10. On account of the expense, it will be impossible to convey over sea the whole invading army, and the scheme provides, therefore, for the sea transportation of only a portion, consisting of one brigade, a battery, and a squadron of cavalry. The others will concentrate at Albengo, where they will be supposed to have disembarked separately. The land operations are interesting, because the theatre selected is that of the

Napoleonic campaigns of 1796: though Napoleon approached over land, while the invaders are to come over sea in the present case. In the event of war with France, the operation most dreaded by Italy would probably be an attack in the rear of their armies in Piedmont and on their northwest frontier, which had been sent by sea.

The theatre of war in the maneuvers is indicated by the places of concentration, which have been ordered as follows: *Red Army* (invaders): the Riviera littoral from Albengo through Savona to Varazze, with the exception of the force to be disembarked, which will concentrate at Leghorn previous to embarkation. *Blue Army*: headquarters at Vado, troops at Carcare.

The scheme provides for the attack by the Reds on the Apennine passes in the vicinity of Gadibona and Zucarello, and their defense by the Blues.

The opposing forces will be as follows:

Reds: a naval force of eleven battleships and cruisers and twelve torpedo boats; a land force of one complete division to concentrate at Albengo, and a mixed force to embark at Leghorn.

Blues: a naval force of nine battleships and cruisers, four destroyers, twenty torpedo boats, and four submarines; a land force of one complete division of mobile militia, fortress troops in the rear,—amounting to almost another division,—and the Gendarmerie and Customs Service within the area of operations.

THE LAUNCHING OF THE SAN GIORGIO

The new Italian armored cruiser *San Giorgio*, the first of the newest type of armored cruisers for the Italian Navy, was launched successfully at the yards at Castellamare di Stabia on July 28, 1908, the Duke of Aosta and most of the naval authorities being present. The Bishop of Castellamare, accompanied by the Archbishop of Rossano and two other bishops, performed the religious rite, while Signorina Di Brocchetti, daughter of the Admiral Chief of the Naval Department, broke the bottle. The *San Giorgio* is a sister ship of the *Pisa*, launched at Leghorn on September 15, 1907; of the *Amalfi*, which has been under construction at Genoa for some time, and of the *San Marco*, which is still on the slip. Much mystery has surrounded the *Pisa* and *Amalfi*, which have been pushed much faster than usually is done in Italy, and are reported to have been sold to Argentina, although this year-old rumor has never been confirmed. Nevertheless, these two vessels, which were laid down after the *San Giorgio* and *San Marco*, are to be completed before the others. Each vessel is of 9,832 tons displacement,

measuring 429 feet 9 inches long, 68 feet 9 inches beam, with 24 feet 9 inches draught. While the displacement is small, corresponding to that of the French cruiser *Conde*, the German *Roon*, and the British *Kent*, their contract speed is to be 22.5 knots and their armament much heavier than that of either of the three other foreign vessels mentioned, since the vessels of the *San Giorgio* class are each to carry four 10-inch, eight 8-inch, sixteen 3-inch, and eight 1.8-inch guns each.

BRAZIL

THE PARA

Much has been said recently about the ultimate destiny of the new Brazilian battleships now building in Great Britain, but in these discussions sight has been lost of the fact that Brazil is building other fine vessels. Aside from battleships, her present building program includes two scouts and ten torpedo-boat destroyers. The *Para*, the first of the ten destroyers, the construction of which has been entrusted to Messrs. Yarrow & Co., of Glasgow, was successfully launched at the yards of that company on the Clyde on July 14, in the presence of Admiral Duarte Huet de Bacellar, Chief of the Brazilian Naval Commission that has charge of all of Brazil's present naval construction in England; Captain A. Rosaure de Almeida, Chief of Brazilian Naval Construction; Captain Emilio Julio Hess, and other officers of the Brazilian Commission, as well as Captain Felinto Perry, who will command the vessel. The length of the *Para* is 240 feet, beam 23 feet 6 inches, and her displacement is about 700 tons. The launching is the first at the new works of Messrs. Yarrow since the removal of the company from the Thames to its new works on the Clyde. The destroyer is to be fitted with two sets of triple expansion four-cylinder engines, balanced on the Yarrow, Schlick, and Tweedy system, supplied with steam from two double-ended Yarrow boilers, each boiler being capable of about 4,000 horsepower. The craft very closely resembles the English river type, but is larger.

OTHER BRAZILIAN CONSTRUCTION

Progress on other Brazilian warships is being made by British shipbuilders. Messrs. Yarrow, at their new Clyde works, are at work on the other nine seagoing destroyers for Brazil, and three of these are in as nearly a forward state of construction as the *Para*, which has just been launched.

The new Brazilian battleships of the improved *Dreadnought* type form an important fraction of the warship tonnage under construction in England. The *Minas Geraes* has been hurried toward completion at the Armstrong works at Elswick, and is to be launched in September. The boring operations at the stern have been completed and the propellers and shafts fitted in place. The work on her sister battleship, the *São Paulo*, is going ahead at the works of the Vickers Company, at Barrow. The third of these battleships, the *Rio de Janeiro*, is being laid down at the Armstrong yard at Elswick.

Besides these, there are two 3,500-ton scout ships—the *Bahia* and *Rio Grande del Sud*—being built at the Armstrong yards at Elswick. They will be turbine driven, and each will carry ten 4.7-inch guns.

On July 6 Lobnitz & Co. launched a twin-screw tug, the *Julio de Castellos*, for the Brazilian Government.

There was delivered to Brazil last fall by Yarrow & Co. the *Goyaz*, a first-class torpedo boat of 150 tons displacement, which made 26.493 knots for three hours on her official trial; her propelling machinery consists of a combination of reciprocating and turbine engines.

THE REPORTED PURCHASE OF BATTLESHIPS

Reports were recently circulated, and promptly denied, that Brazil had ordered a large number of warships and immense quantities of munitions from England, with a

view of turning the whole consignment over, when finished, to Japan, the inference being that they were for use against the United States. This statement was denied in press reports from Rio de Janeiro at the time, but an official communication of the same tenor has been received by Senor Nabuco, the Brazilian Ambassador to the United States. He says:—

"I have received the following telegram from Baron De Rio Branco for publication. Kindly have it widely circulated, as the newspapers are all discussing matter. Telegram follows:—

"The news telegraphed by a South American correspondent to New York and there made subject of articles by New York newspapers, that Brazil is building warships and buying armament for Japan, is an invention forged with the ridiculous thought of involving Brazil with the United States of America. The old and cordial friendship between the two countries is known, as well as the excellent relations existing between their governments. The significant telegrams exchanged by Presidents Panna and Roosevelt, on the occasion of the visit of the American fleet to Rio de Janeiro, only six months ago, and the fact of the Government of Washington having just now intrusted to Brazil the American interests in Venezuela, are proof enough of our friendship, even if our mutual relations were not of such perfect and cordial intelligence. Every sensible person will understand that an honest and respectable Government would not lend itself to play the part attributed to Brazil by the inventor of the news.—RIO BRANCO."

THE NAVY LEAGUE OF THE UNITED STATES

THE NAVY, under its new management, wishes particularly to commend itself to the membership of the Navy League. The League's formal statement of its policies includes practically the whole purpose of this magazine. Nevertheless, THE NAVY is not intended to be in any sense the organ of the League. In this respect, as in others, it will preserve absolute independence. It will maintain a Navy League section, in which will appear such items as are supplied by the Secretary of the League. Chairmen and officers of League Sections and League members generally are invited to address the editor for publication on any matter which would be of particular interest to the League.

The following are interested in forming new Sections of the League:—

W. P. Andrews, Rochester, N.Y.
Garrett Andrews, Chattanooga, Tenn.
J. R. Barrett, Louisville, Ky.
R. M. Bean, Louisville, Ky.
George Fred Blair, Portland, Oregon.
E. C. Blandy, Osceola Mills, Pa.
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MEDAL FOR NEWPORT TRAINING SCHOOL.

The Admiral Trenchard Section of the Navy League of New York, composed entirely of ladies, is one of the most active and energetic Sections in the League.

Miss Mary Van Buren Vanderpoel is President; Mrs. James E. Pope, Secretary; and Mrs. Charles Warren Hunt, Treasurer. Many of the members are connected with the Service through their husbands, fathers, brothers, or sons, and, being anxious to do something to stimulate and encourage the young enlisted men of the Navy, have had prepared a handsome and appropriate gold medal, to be presented to the best marksman for the year at the United States Naval Training School, Newport, R. I.

Commander William F. Fullam, the commanding officer of the Training School, heartily approves of the idea and has organized the Section that it will give him great pleasure to present the medal to the winner, and that the occasion will be made an impressive one.

The medal was designed and made by Mr. F. Walter Lawrence of New York. It is of pure gold, one and a half inches in diameter with a raised edge, and is inscribed by its rim with a cross bar of gold on which is engraved the word "Marksmanship". On the obverse is a globe with a banner draped over it, on the banner is inscribed by the Admiral Trenchard Section of the Navy League for excellence in Marksmanship. On the reverse is a globe with a banner draped over it, on the banner is inscribed by the United States Naval Training School, Newport, R. I. A representation of a modern bat-

tleship fills the upper half of the circle, while the lower half will contain the name of the winning marksman.

THE COMMODORE M. F. MAURY SECTION

"The Commodore M. F. Maury Section" has been organized at Bristol, Tennessee. Mr. Frank Taylor, nephew of the late Rear Admiral H. C. Taylor, undertook the organization of this Section and has interested a number of prominent local people.

The following have been elected officers of the Section: Samuel L. King, Chairman; Hon. John I. Cox, Vice Chairman; Frank Taylor, Secretary and Treasurer. Members elected: Samuel L. King, John I. Cox, Eli A. Warren, John Caldwell, Albert Parlett, Fred R. Sheen, Gordon C. Fuqua, Frank Taylor, Samuel V. Fuikerson, Ben C. Cochran, Thomas W. Preston, James Gannon, Matthew H. Maury, and R. L. Delaney.

THE LEWIS CASS SECTION

A Section of the League has been organized at Cassopolis, Michigan, to be known as "The Lewis Cass Section." Judge L. Burget Des Voignes, who organized this Section, has been elected Chairman; David C. Thickstun, Vice Chairman; Charles A. Ritter, Treasurer; and William H. Berkey, Secretary. The following have been elected members: Commander Frank M. Bennett, U.S.N., James M. Shepard, David C. Thickstun, L. Burget Des Voignes, David L. Kingsbury, James C. Hayden, Charles A. Ritter, and William H. Berkey.

THE ADMIRAL JAMES E. JOUETT SECTION

A charter to organize "The Admiral James E. Jouett Section" of the League at Louisville, Kentucky, has been issued to the following: Rear Admiral John C. Watson, U.S.N., E. W. C. Humphrey, Barrett J. Russell, John B. McFerran, John Stites, John W. Barr, Jr., E. S. Monahan, Alexander D. Humphrey, John J. C. Watson, and Joshua F. Spickel.

NEW SECTION AT SEATTLE, WASHINGTON

A charter to organize a Section of the League at Seattle, Washington, has been issued to the following: William P. Trimble, C. S. Harley, N. R. Sibley, George H. Bailey, William H. Fern, A. Barry, Admiral H. Lor, L. W. H. P. Thomas, T. M. Andrews, Jr., Roger S. Greene, E. J. Jamison, George M. Paschall, E. W. Andrews, T. M. Young, J. N. Watson, James D. Hoge, Ralph S. Stacy, Thos. B. Henson, George H. Walker, Joseph E. Babin, Charles McNamara, J. K. McKraw, W. A. Peters, George F. Kittinger, C. H. Hamford, and E. Hanger Wells.

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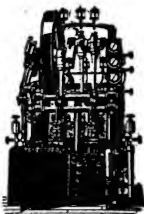
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LACK OF SUBMARINE SIGNAL APPARATUS

EDITORIAL

THE 50-CALIBER BIG GUN

THE GRADE OF VICE-ADMIRAL

AERONAUTICS IN THE NAVY

THE SCOUT CRUISERS

SERVICE ITEMS

FOREIGN NAVIES

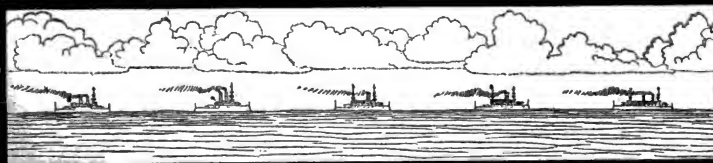
FOREIGN NAVAL CORRESPONDENCE

EVOLUTION OF THE BROADSIDES

GERMAN NAVAL CORRESPONDENCE

THE ITALIAN NAVAL MANEUVERS

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THE NAVY

Vol. II

WASHINGTON, D.C., SEPTEMBER, 1908

No. 8

NOTE AND COMMENT

SCIENTIFIC advances are rapid nowadays. In no other branch of technical endeavor is the advance so rapid as in the field of naval improvement and development, in spite of the handicaps under which the most progressive men in various branches of this profession are compelled to labor in their advance toward the ever-distant ideal—the perfect ship. So swift, indeed, is the progress of naval science that one must be constantly alert to keep abreast of the times; some battleships are obsolescent even before they receive their first commission. The past five years have been especially fruitful of innovation. Within that period the admiralties of the great powers have been impressed with the idea of the so-called *Dreadnought*—the distinctive feature of which is the mounting of many big guns of the same caliber. The growth of the *Dreadnought* movement has been nothing short of marvelous. While some naval experts, especially abroad, advocate a return to vessels of smaller displacement, the fact remains that *Dreadnoughts* are being launched as speedily as they can be put into the water, and not one of the great powers has yet been willing to initiate a retrograde movement toward the abandonment of the all-big-gun-big-ship principle. There is also the influence of the turbine and the development of that idea since this new type of marine engine was first successfully used in vessels of such large tonnage as the two big new Cunarders and in warships of such great displacement as the original of the modern *Dreadnoughts*. Oil fuel is revolutionizing speed in vessels of war, which burn it either exclusively or as an adjunct to coal. Introduction of the turbine and super-heater principle has greatly increased the offensive power of torpedoes and torpedo craft and necessitated increasing the effective range of torpedo defense guns from a thousand yards to four thousand yards. The use of smokeless powder has brought about the construction of guns of greater power; wireless telegraphy has revolutionized maritime communication; and the evolution of the submarine has added other problems to the many already confronting modern naval experts.

Although yet in its infancy, the internal combustion engine is engaging the attention of some of the world's best engineers; and in the broad field of naval ordnance there is no end of novelties proposed for new warships, both in the type of guns and in their arrangement upon their platforms.

EVER since the letting of the contracts with British firms for the building of the three new Brazilian battleships of improved *Dreadnought* design, there have been inklings from abroad concerning the development of a new type of high-powered big gun—the 13.5 weapon. First it was declared that this type of gun would find its way into some of the British battleships of later design than the *Dreadnought*. Then we were informed that it would be installed in the new Brazilian *Dreadnoughts*. Denials came and then reiterations, rendering it difficult to make satisfactory deductions. We are told that these 13.5 guns merely exist on paper; then, that they are being actually built in the works of Messrs. Beardmore & Sons and are intended for the British Gunnery School at Whale Island for exhaustive testing. This would be the natural and logical course to pursue before replacing the British 12-inch with the 13.5-inch guns. Not less novel is the suggestion that we may have "three-gun turrets," involving the mounting of three huge pieces of modern ordnance of heavy power behind the walls of a single turret. It is not many years ago that the two-gun turret displaced the one-gun turret, and turrets themselves date back only to the cheese-box of a *Monitor* whose battle in Hampton Roads settled the fate of the unarmored warship. Astonishing as the "three-gun turret" may sound, the report has been seriously advanced in Germany that the Italian Admiralty is considering the wisdom of mounting on their proposed new *Dreadnoughts* twelve 12-inch guns in threes. With three guns in a turret, only four turrets would be required to mount twelve of these weapons, whereas in the new German and Brazilian

The
Three-gun
Turret

Dreadnoughts six turrets are required for the same number of guns. Japan is also credited with having given consideration to the three-gun turret idea. Whether it is feasible, or advisable, or expedient, or prudent to adopt the three-gun turret remains to be discovered by the development of the idea by the best talent among the world's ordnance experts. Whether such an arrangement of twelve 12-inch guns would save weight enough to count, or afford the necessary elbow-room to allow for the recoil of the guns and freedom of movement for the gun crews, or render it impossible for the gunners to remain within the turrets, are other factors to be considered very thoroughly before the three-gun idea is adopted, after it shall have been determined that such a concentration of trios of big-guns is advantageous in other respects. Four such turrets might simplify the manner of stowing and handling enough 12-inch projectiles for twelve such guns on a single vessel. On the other hand, three guns might rather easily be placed out of commission at once if their turret were disabled in battle, while two more turrets than in the case of the three-gun turret arrangement would have to be disabled before all twelve guns were eliminated in the six-turret arrangement of this dozen weapons. Whatever the value of the three-gun turret idea, the novelty has already attracted attention abroad. Not many years ago the idea of the superposed turret—a turret containing one pair of guns, resting upon another turret containing another pair of guns—was introduced in the American navy, but this turret has been abandoned in later American types, it having been found that the firing of the 12-inch guns below interfered with the operation of the 8-inch guns above; and, besides, with the elimination of the 8-inch gun from the batteries of the single-caliber ships of which the *Dreadnought* is the modern prototype, superposed turrets would be superfluous in the all-big-gun-big-ship.

THE naval power that first finds the way to prevent erosion by changes either in the gun or in the powder, will at once take the lead in the power of naval **Gun Erosion** ordnance. This is one problem which leading naval powers have been endeavoring to solve, and while calling for considerable outlay of money, the results as regards range and accuracy of fire more than justify the expenditure. In the matter of erosion the character of the steel used in building the weapon has long been seriously studied. Within the past few years a wonderful field has opened in connection with the alloys of certain substances with steel, and there is strong reason to

believe that among these alloys there can be produced a metal for use in the bore of the gun which will resist erosion to a far greater extent than does the steel now generally used for naval ordnance.

The question of powder is equally important; and in this direction many long and costly experiments have been conducted in this country and abroad. Efforts are progressing on both sides of the Atlantic toward the development of powders which will be more stable and less serious in their eroding effect upon guns. Captain Monni of the Royal Italian Navy has been giving very serious study to the advantages attending the experimental addition of carbon to smokeless powder. His argument is based on the fact that the carbonic acid gas produced by the explosion takes from the steel of the gun the carbon necessary to form itself into carbonic acid, thereby giving rise to erosion. Captain Monni proposes, therefore, to supply the necessary carbon by adding charcoal to the smokeless powder during its manufacture. Thus transformed, the smokeless powder is declared to burn at a much lower temperature. Captain Monni asserts that his experiments have confirmed his theory, by showing a smaller degree of erosion in the guns used in the experiments. It is understood that it is necessary in his scheme to increase the charge only slightly to compensate for the decrease in the temperature of the explosion and the comparatively great decrease in the volume of explosion gas produced. In some cases it is understood the proportion of carbon added has been as much as 10 per cent of the weight of the smokeless powder.

TIME is ripe for the development of a new type of big guns for the American Navy—the 12-inch gun of fifty calibers in length. This kind of weapon is now being introduced in leading foreign navies, to add to the velocity and increase the range at which battles may be fought with the *Dreadnought* type of warship. A new 12-inch gun with the long muzzle will be mounted in the new British all-big-gun ship, the *St. Vincent*, which has just been launched. Some of these guns have already been built. The longest 12-inch guns in the American Navy measure forty-five calibers in length, and this is the type of gun that is to be mounted in the two new *Delawares*, now building, as well as in the two *Floridas* which are to be laid down before the end of the present year under the authority of the Naval Appropriation Act of 1908. The British 12-inch guns have heretofore been 45 calibers long, but a new type five calibers longer has been adopted,

The 50-Caliber Big Gun

and we are told that the length of the 12-inch guns for the new Brazilian *Dreadnoughts* is to be 50 calibers.*

A model of the 12-inch 50-caliber gun forms part of the exhibit at the Franco-British Exhibition of naval ordnance manufactured by the firm of Vickers Sons & Maxim, Ltd., one of the most progressive of British firms.

It is generally known that the later British *Dreadnoughts* have 12-inch guns of fifty calibers, and it is understood that these develop about 53,400 foot-tons of energy, with a muzzle velocity of about 3,010 feet per second. Ten years ago the service 12-inch gun was of 33,020 foot-tons energy, with a muzzle velocity of 2,367 feet per second. The latter was a 40-caliber gun, so that the result in the British naval service has been a more efficient propellant without great increase in pressure. The corresponding gain in penetration at 3,000 yards, according to the Gavrè formulae, is 6 inches in hard steel plates, the penetration of the new piece being 20 inches at that range. That is, it has been claimed that the 50-caliber gun should perforate eleven inches of hard steel plate at a range of 10,000 yards. As one foreign expert has indicated, it has, therefore, become a question whether it is worth while to increase the bore of the gun to 13.5 inches, as some desire, since the difference in the weight of the projectile—1,250 pounds against 850 pounds—may reduce rapidity of fire, while a greater range than 10,000 yards is seldom practicable, owing to weather conditions. On the other hand, it is pointed out that the blow at all ranges is proportionately intensified with increased power, and there are always advocates of higher striking energy. The ballistics of the latest type of Vickers 12-inch 50-caliber naval gun at the Exposition mentioned are well worth considering. The diameter of the bore is 12 inches, the length of the bore 600 inches, and the length of the gun 617.7 inches, the maximum pressure in the chamber being 18.5 tons per square inch. The weight of the powder charge is 344 pounds, propelling a projectile weighing 850 pounds. The weight of the gun is 65 tons 1,700 pounds. Its muzzle velocity is 3,010 foot seconds, and the muzzle energy 53,400 foot-tons, giving a penetration of 52.1 inches of wrought iron plate at the muzzle, a penetration of 40.4 inches of steel

plate at the muzzle, and a penetration of 20 inches of hard steel plate at a range of 3,000 yards. This gun fires two rounds per minute.

As to the accuracy with which modern 12-inch guns may be fired, we need only refer to the achievements of the American Navy in last October's battle target practice in Cape Cod Bay and to performance by the *Dreadnought* of the British Navy, on June 19 last, when, by command of King Edward VII, the Prime Minister of Nepal, accompanied by members of the government and state officials, went on a cruise in that battleship to witness firing practice under service conditions. The targets were 16 feet high by 20 feet wide, the range 2,500 yards, or just 500 yards less than the range at which the new Vickers 50-caliber big gun can penetrate 20 inches of hard steel plate, and the speed of the firing ship was 12 knots an hour. The time occupied in firing was 234 minutes. Fifteen rounds were fired and thirteen hits made, eleven rounds having been at the right-hand target with nine hits, and four rounds at the left-hand target, all being hits.

Not only have the Vickers designed a 50-caliber 12-inch gun and the British Government adopted it, but the gun-building firm of the Krupps have recently proposed to build a 12-inch, 50-caliber gun weighing 67 tons, the muzzle energy of which is to be in the neighborhood of 50,055 foot-tons. We are informed that 12-inch 50-caliber guns were projected some time ago by American ordnance men, but none have yet been built. Our limit is now 45 calibers for this size of bore. The records of hearings before the House Naval Committee last January show that no mention was made of 50-caliber guns of 12-inch bore for our navy. However, it is also only fair to point out that Congress was not as liberal and far-seeing as it might have been in the appropriations which it did make. Admiral Mason strongly urged Congress, when he appeared before the House Committee, to make an appropriation of \$1,108,000 with which to replace eighteen guns of 12-inch bore, Mark III, 40 calibers in length, on our present warships with the same number of 12-inch guns, Mark V, 45 calibers; but the text of the Naval Appropriation Act of 1908 shows that this recommendation was not heeded and not a cent was designated in the law for that purpose. Admiral Mason also strongly urged an appropriation of \$502,000 with which to replace twenty guns of the 8-inch, Mark V, 40-caliber type, with 8-inch Mark VI, 45-caliber guns, on the *Maryland*, *South Dakota*, *California*, *Pennsylvania*, and *West Virginia*; but Congress allowed only \$250,000 for this purpose, cutting to one half the amount recommended.

* In small guns caliber represents the diameter of the bore; for example, "caliber .30" rifle means a rifle with three-tenths of an inch bore. But in large guns "caliber" is used to represent length. It is a distinction which has been used for years. When a gun is spoken of as "fifty calibers long," the idea is conveyed, in the case of a big gun, that the length of the bore of the gun is just fifty times its diameter. The 50-caliber 12-inch gun would, therefore, be 600 inches, or fifty feet, long in the bore,—five feet longer than the 45-caliber gun of the same diameter of bore.

The *Colorado*, the sixth armored cruiser of the *Maryland* class, during the last target practice which she had in Chinese waters, blew off the muzzle of one of her 8-inch, 40-caliber guns during the early part of 1907. Following this accident, the decision was reached by the Bureau of Ordnance, in August, 1907, to replace all of these 8-inch, 40-caliber guns with 45-caliber weapons. The *Colorado* upon her return to the Puget Sound navy yard last fall was the first vessel to receive four of these 45-caliber weapons, taken from the reserve. These older 40-caliber guns, like those which figured in the various accidents on the battleship *Iowa*, were designed for brown powder and lower velocities, and have not sufficient strength at the muzzle. Congress should take a different attitude on this important matter and aid the Department in the equipment of our warships with the latest types of guns that can be mounted in them. In view of the trend abroad in favor of guns of greater velocity obtainable through longer muzzles, it would seem that serious consideration should be given to the question of the wisdom of installing 12-inch guns of 50-caliber length on our newer battleships. The general adoption of the 50-caliber weapon would increase the range of future battles, and the American Navy would be handicapped—the other things being equal—in such a struggle to just the extent that it fails to attain that maximum effective range of any possible enemy.

Nor only is the voyage of the Atlantic Fleet the longest ever attempted by so powerful a modern fleet, but as a

*The Fleet
and the
Future*

circumnavigation of the globe it is not without deep and significant political value in the relations of the American people with the rest of the world. First, at Trinidad British officials greeted the fleet. Then came the stay in the harbor at Rio, with its impulse toward an even closer knitting of the friendship between this country and the United States of Brazil. Around the coast of South America and all the way up to Magdalena Bay this spirit of international good-will was conspicuous. Then the fleet steamed to Hawaii at an opportune time, giving the natives of those islands an idea of the naval strength of their new political guardian, simultaneously with the businesslike entry of the United States upon an adequate scheme for the fortification and development of an important naval base in that mid-Pacific outpost. With like success this fleet has carried its messages to New Zealand and Australia. There Rear Admiral Sperry's vessels and

men have created a good impression and brought Australians and Americans—children of common origin and political ideals—closer together than they have ever been before. This visit developed a strong sense of kinship, as Alfred Deakin, Premier of the Commonwealth of Australia, put it, "not merely because of our relative nearness to the States on the Pacific Coast, but because its circumstances and ours resemble each other." The American people desire no conquest of Australia, as some irresponsible and impulsive writers would have the British people believe. But we do desire the friendship and good-will of the English-speaking peoples of the Australian archipelago, as well as of the Asiatics fronting us from across the Pacific. The foundation for Australian friendship was well laid by the American fleet under Rear Admiral Sperry. It is estimated that a million Australians saw the vessels during their stay; and when the battleships passed Rottnest Island, twenty miles off the coast of West Australia, on September 20, every excursion boat and private craft available was pressed into the service of carrying some six thousand persons from all parts of West Australia out to Rottnest and formed a convoy which followed the departing American vessels some twenty miles on their way from Albany to Manila. Due at Manila October 1 and at Yokohama October 17, the fleet has entered that portion of its travel of greatest importance in the political relations of this country with the Orient—the visits to Japan and China.

NOTICE

A memorial window to the late Rear Admiral W. T. Sampson, U. S. N., will be unveiled in the chapel at the Naval Academy, Annapolis, on November 21st, 1908, at 11 A. M., Rear Admiral A. T. Mahan, U. S. N., retired, delivering the address.

As the subscribers for this window were officers and enlisted men of the U. S. Navy, whose addresses are in many cases now unknown, the Committee takes this means of extending to them a cordial invitation to be present at the unveiling ceremonies.

By order of the Committee.

FRANCIS J. HIGGINSON,
Rear Admiral U. S. N., Retired.

SEPTEMBER THE NAVY 1908

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Articles elsewhere in this issue touching the development of higher powered guns abroad suggest that our Navy Department should be active in this respect. The foreign powers have practically adopted fifty calibers as the length of the twelve-inch gun, which has heretofore been the standard big gun. There are indications, however, that the diameter of the bore of the big gun may be increased to as much as 13.5 inches. While we practically discontinued the 13-inch gun some years ago, that is no indication that a larger gun may not soon become the standard of the world. The 13-inch gun was discontinued because methods of construction and design had not at that time reached a point which made this weapon practicable. With the increased displacements and the greater room for big gun emplacements afforded by eliminating the guns of intermediate calibers, it is only logical that this heavier type of gun should be adopted.

THE GROUNDING OF THE YANKEE

The *Yankee* ran aground in a dense fog near Hen and Chickens Light Vessel, at the entrance to Buzzards Bay, at 5 A. M., September 23. For weeks thereafter the most determined efforts were made to get her off, but without success. It is said, but with no particular authority, that the money so far spent in endeavoring to save her is about \$100,000. The Navy Department has now abandoned the attempt to recover her unaided and has called for bids from wrecking companies to save her. It is difficult to see why, when the seriousness of her position was realized, such bids were not at once called for. To have done so would not have interfered necessarily with the

BOOKS RECEIVED

With the Battle Fleet.

By Franklin Matthews. Illustrated by Henry Reuterdahl. 330 pages. B. W. Huebsch, New York. Price, \$1.50.

The United States Navy: Illustrated.

Over 60 reproductions from original photographs of vessels of the Navy. C. S. Hammond & Co., New York. Cloth, \$1.00; paper, 50 cents.

work which the Navy Department has done to recover her and might have saved much time and money in the event of her recovery, or at once resulted in discovering the futility of efforts to save her. Chief Constructor Washington L. Capps visited the *Yankee* immediately after its grounding, arriving on September 25th, and it was widely reported in the papers that he was in charge of the wrecking operations. The Navy Department is indeed fortunate in combining in one of its bureau chiefs that scientific knowledge which, it is well known, is necessary to design and build our ships, together with the special experience which is required in the successful wrecker. It is difficult to believe that the seriousness of the *Yankee's* situation escaped Chief Constructor Capps; yet, for some reason or other, the Navy Department seems to have ignored it, for only after weeks of dawdling, day by day,—getting a few more pumps on the scene, more hawsers, more cement,—did it finally decide to employ professional wreckers. At the moment of writing this paragraph it seems unlikely that the professional wreckers will be able to save the ship.

At the first call for bids, but one was received. This was rejected, on the ground that the law does not permit the awarding of contracts where only one is received. Afterward, a second, and lower, bid was received, and the contract awarded to John Arbuckle. It is not quite clear just what facilities Mr. Arbuckle, the well known sugar refiner and coffee merchant, has for undertaking this work. However, his bid was far lower than the other one received, and the Navy Department, tied hand and foot by statutes, had perhaps no other recourse. Moreover, it was doubtful if the ship could have been

recovered by the most expert of wreckers even at the outset; but it seems quite clear that the work was much more difficult when they were finally called upon than it would have been originally. During the period between her grounding and the acceptance of Mr. Arbuckle's bid, the ship did not move, except to be more firmly fixed on the rocks on which she struck; and in the meantime, in the fruitless efforts to get her off, large quantities of cement had been put into her, which only served to increase her weight. Of course, the work done by the Navy Department in lightening the vessel by removal of stores, guns, etc., was most useful, as it would have been necessary to do this in any case.

Immediately after the grounding of the *Yankee*, the usual preliminary investigation was held by order of the commanding officer. The results of this investigation have not been made public, but were probably of a largely routine nature, merely reciting the circumstances of the grounding without pretending to fix responsibility. Whether any person in the navy was at fault or not, the seriousness of this accident will undoubtedly impel the Navy Department to order a court of inquiry; and should blame be imputed to anyone, a court-martial will probably follow. Would it be shocking to the sensibilities of the Navy Department to extend the scope of the court of inquiry to its own conduct?

LACK OF SUBMARINE SIGNAL APPARATUS

Whatever investigation may show as to the fault of any person on board of the *Yankee*, or with her, at the time of the grounding, it seems perfectly clear that the Navy Department was at fault in this matter in one important point: the *Yankee* is not fitted with submarine signal apparatus. Hen and Chickens Light Vessel is fitted with submarine signal apparatus. The *Yankee* grounded within a mile and a half of the Lightship. Submarine signals can be distinguished with practical certainty up to four miles, and may reasonably be depended upon up to six to ten miles, and have frequently been distinguished up to fourteen miles. The apparatus costs little, and it can be installed in about two days' time. The *Yankee* was acting as flagship of

a detachment of submarine boats, was operating under orders of the Navy Department on a coast and at a season of the year where fogs abound, and it would seem that if any vessel in the navy needed the submarine signal apparatus, the *Yankee* did.

Let us see how the Navy Department stands with reference to this aid to navigation. Of the great maritime countries of the world, the United States has more submarine signal stations on its coasts than all of the rest of the world together. In 1907 it had a total of over forty-five such stations. There are nineteen on the stretch of coast between Boston and New York, but be it remembered that these stations were not established by the Navy Department. They were established by the Lighthouse Board, under the Treasury Department. Of the great maritime nations, the United States Navy had for all of its ships in 1907 but twenty-six such installations. The Canadian Pacific S. S. Co., the Hamburg American Line, the North German Lloyd S. S. Co., the White Star Line, have all of their transatlantic steamers equipped with this apparatus. Every lighthouse tender in the United States has a set on board. The Old Dominion S. S. Co. has all of its vessels so equipped. The Lighthouse Board "regards them as efficient aids to navigation and will extend their use as the necessities of navigation require." A report made to the British Admiralty in October, 1906, reads in part as follows:—

"If the light-vessels round the coast were fitted with submarine bells, it would be possible for ships, fitted with receiving apparatus, to navigate in fog with almost as great certainty as in clear weather.

"Men-of-war would be as much benefited by the submarine bell as merchant vessels, as it is of the greatest importance that they should be able to navigate the coasts with speed and certainty in thick weather."

Is it not obvious from the foregoing that it is absolutely inexcusable that any naval vessel should go to sea unequipped with this apparatus?

It should be noted that the submarine apparatus not only enables the navigator to learn of the proximity of a light vessel, but to get its bearing within an extremely close range of accuracy. This is perfectly clear from the British report above and from many other tests and experiments. It is therefore possible by this means and

by taking successive bearings while under way to locate the light vessel, not only by bearings, but by distance; in other words, to locate the ship with more than sufficient accuracy to avoid the dangers which the lightship marks.

REAR ADMIRAL EVANS' LAST OFFICIAL SPEECH

We quote below the speech made by Rear Admiral Robley D. Evans on the day of his retirement, August 18, 1908, on the occasion of a dinner given to him at Lake Mohonk. In its simplicity and sincerity it has qualities which marked the greatness of the Gettysburg address. It is a modest statement of devotion and patriotism, by a man who knows what both words mean: they are sober, serious things for him; they bring hardship and suffering. His speech shows what all his friends knew,—that the man who was ready for a "fight or a frolic" thought of nothing lightly. Admiral Evans could never have said anything better than he has said it in this speech. It would be hard indeed to say better or more stirring things than he has here said, or to say, more simply, anything worth saying. What has the country or Congress, representing it, done for this man? He is allowed to retire "for age" with no more rank than any merely well-behaved average German or British naval officer would reach at fifty. Admiral Evans' speech follows:—

"In one respect at least naval officers are exactly like any other worthy servants of the people,—they are glad when they have pleased their employers. From what I have heard and seen here to-night, it seems that during my 48 years of active service I have given satisfaction to you, who may fairly be assumed to represent the people of the United States—my employers. I have not the necessary words with which to thank you for what you have to-night done for me. Please accept my sincere thanks for the beautiful cup, which will be preserved and valued by those of my family who survive me.

"It may not be out of place for me to say that during my forty-eight years of service I have done all in my power to uphold the honor and dignity of my country, and that I have loved the dear old flag as I love nothing else in this world. That I have suffered severely under that flag must be evident to any one who sees me, but I would live my life over again just as I have lived it if I knew the suffering was to be a thousand times as great. I go to the retired list with a feeling that it is a reward for long and honorable service, and I hope to enjoy the rest and comfort it may bring, unless some emergency

shall call me back into active service, when I shall give all that remains of me to my country as willingly as I have given the best years of my manhood."

A METHOD OF ANSWERING CRITICISM

Naval Constructor R. H. Robinson, U.S.N., in a letter to "Collier's," published in the number of September 26, says:—

"Since the Chief Constructor has so far declined to comment upon unofficial criticisms of naval materiel except through the usual official channels, I requested and obtained his permission to advise you as to the facts hereinbefore stated."

This appears in part of a letter in which Mr. Robinson answers certain statements of an article by Mr. Reuter-dahl appearing in an earlier number of "Collier's." In this article Mr. Reuter-dahl said that the "all-big-gun ship," as represented by the *Dreadnought* and as now being developed in our recent designs, originated in 1905 with Lieutenant Poundstone, but that the Bureau of Construction and Repair pigeon-holed his suggestion and did not touch the design until after the British had brought it out. Mr. Robinson traces the history of the all-big-gun ship idea, for the purpose of making it appear that the idea did not originate with Poundstone or with Cuniberti, to whom it is usually attributed, but may be seen to be the underlying principle of naval construction for many years back. He cites the Civil War monitors and a previous British *Dreadnought*, laid down in 1895, as conspicuous earlier examples. Does it not appear to be splitting hairs to set up this claim, for, after all, is it not true that the all-big-gun ship of to-day was first practically developed and put in the water by the British Navy in its present *Dreadnought*, and that we did in fact follow and not lead in this matter? If we did have an all-big-gun ship thirty years ago, it is nevertheless true that at the time that the *Dreadnought* was put in the water we did not possess a modern example of this idea.

Is it not again an artificial distinction that is made when the Chief Constructor takes the position of declining to answer criticisms of naval materiel except through official channels, but permits a subordinate, an assistant in his

own bureau, to do so? There probably is no valid reason why these criticisms should not be answered. It would probably be better for the navy if they were answered. It would be well that the Navy Department should require the Bureau of Construction to answer these criticisms, at least in so far as they can be answered. This would have a tendency to show what is right and what is wrong and would aid to eliminate the wrong.

(Was it a publisher's blunder that the letter of Naval

Constructor Robinson above referred to was signed "Lieut. R. H. Robinson, Naval Constructor, U.S.N."? Mr. Robinson is not a lieutenant, and it is hardly likely that Mr. Robinson so signed himself; for, even if he were to have in mind his rank in the service, he would have referred to himself as "Lieutenant-Commander" and not as "Lieutenant." It is apparently a publisher's error and is another indication of the extent to which the general public is ignorant on the subject of the make-up of the personnel of the navy.)

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

EVOLUTION OF THE BROADSIDES

September 12, 1908.

With the launching, on September 10, of two more battleships of the improved *Dreadnought* type—the *Minas Geraes* for Brazil at the Armstrong yards at Elswick, England, and the *St. Vincent* for Great Britain at Portsmouth dockyard—more accurate knowledge of both vessels is obtainable; while they have their secrets, they are no longer "mystery" ships. Both are powerful vessels, the better for which belongs to British naval designers, although one is for another nation than Great Britain. In many ways interesting comparisons might be made between these latest British and Brazilian types and the *Dreadnought* idea as elaborated by Germany and the United States. With the launching of the *Nassau* at Wilhelmshaven on March 7 last and of the *Westfalen* at the Weser yards at Bremen on July 1, Germany already has two *Dreadnoughts* in the water. With the launching of the *St. Vincent* the British Navy now has five *Dreadnought* battleships—*St. Vincent*, *Superb*, *Bellerophon*, *Téméraire*, and *Dreadnought*—in the water, besides three powerful battleship cruisers of the *Indomitable* type. Brazil is launching three, but has only one launched. Excluding the *South Carolina* and *Michigan* (which each displaces only 16,000 tons, although each mounts eight 12-inch guns), the United States has yet launched none of its *Dreadnoughts*, although it has four authorized, including the *North Dakota* and *Delaware*, which will soon be launched, respectively, at the Fore River and the Newport News works. There now seems to be no doubt that the German and Brazilian *Dreadnoughts* are each to have

a main battery of twelve big guns arranged in six turrets, and their arrangement is such as to give the *Nassau* and the *Minas Geraes* great superiority of broadside fire over the original *Dreadnought*.

The number and arrangement of the turrets of the *St. Vincent*, the fifth of the British *Dreadnoughts*, are identical with those of the *Dreadnought*. She is considerably heavier than the type-ship, and will carry the new 12-inch guns with long muzzles which add to the velocity, but she will have no more guns on a broadside than the *Dreadnought*. In the British *Dreadnoughts* the arrangement of turrets is such that their ten guns in five turrets give a fore and aft fire of six 12-inch guns and eight on each broadside. Three of these turrets are arranged on the center line of the ship, and the second, or central, one of these turrets is useless fore and aft, being capable of firing only on broadsides. In the American *Dreadnoughts*—the *Delaware* and *North Dakota*—the ten guns on each vessel are mounted in pairs, in five turrets, and these turrets are all on the center line, so that the *Delaware* will be able to fire four 12-inch guns ahead and astern and ten on either broadside.

The new Brazilian *Dreadnoughts* will have the same broadside fire as those of the United States—ten 12-inch guns. But the arrangement of the Brazilian turrets is different, and the six turrets give the Brazilian battleships two more heavy guns than are mounted in either the *Dreadnought* or the *Delaware*. The result is that the *Minas Geraes* will be able to fire eight 12-inch guns forward and eight aft—just twice as many forward and aft as the American *Dreadnoughts*. Four of the six Brazilian turrets are arranged along the center line of the



THE BRITISH BROADSIDE

Battleships *Dreadnought*, *Temeraire*, *Bellerophon*, *Superb*,
St. Vincent, *Collingwood*, and *Vanguard*.

S=smoke-stack. M=mast.

Turrets 1, 2, 4, and 5 fire on starboard broadside..... 8 guns
Turrets 1, 3, 4, and 5 fire on port broadside..... 8 guns
Turrets 1, 2, and 3 fire forward..... 6 guns
Turrets 2, 3, and 5 fire aft..... 6 guns
Turret 4 fires on either broadside. It is useless fore and aft, but may be used in combination with turrets 2 and 5, or with turrets 3 and 5, for firing at an angle astern when the target is not directly astern.



THE AMERICAN BROADSIDE

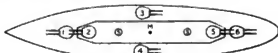
Battleships *Delaware*, *North Dakota*, *Florida*, and *Utah*.

S=smoke-stack. M=mast.

Turrets 1, 2, 3, 4, 5 fire on both broadsides..... 10 guns
Turrets 1 and 2 fire forward..... 4 guns
Turrets 3 and 5 fire aft..... 4 guns
Turret 3 fires on either broadside, but not forward or aft.

ship after the manner of four of the five turrets of the *Delawares*. Two of these Brazilian center-line turrets—the second turret from each end of the vessel—are elevated, as in the case of second and fourth turrets of the American *Dreadnoughts*, so as to enable their guns to fire over the tops of the turrets at the extreme end of each ship. The essential difference between the arrangement of the turrets on the Brazilian and the American *Dreadnoughts* is to be found in the fact that the middle one of the five turrets of the *Delaware* is eliminated from the center line of the *Minas Geraes*, and in its stead two turrets—each mounting two 12-inch guns—are arranged in symmetrical positions on either side of the center of the vessel. In this manner the Brazilians increase their number of guns to twelve instead of ten; and as both of these two central turrets can fire fore and aft, the fore and aft fire has been doubled to eight guns, through a slight change in the American arrangement, in connection with the addition of the extra turret.

The German arrangement places the six turrets of the new Imperial *Dreadnoughts*—the *Nassau* and *Westfalen*—in such positions as to enable them to fire eight 11-inch

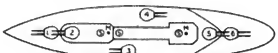


THE BRAZILIAN BROADSIDE

Battleships *Minas Geraes*, *Sao Paulo*, and *Rio de Janeiro*.

S=smoke-stack. M=mast.

Turrets 1, 2, 3, 5, and 6 fire on starboard broadside..... 10 guns
Turrets 1, 2, 4, 5, and 6 fire on port broadside..... 10 guns
Turrets 1, 2, 3, and 4 fire forward..... 8 guns
Turrets 3, 4, 5, and 6 fire aft..... 8 guns
Turret 3 fires only forward, aft, and on starboard side.
Turret 4 fires only forward, aft, and on port side.



THE GERMAN BROADSIDE

Battleships *Nassau*, *Westfalen*, *Rheinland*, and *Ernst Baden*.

S=smoke-stack. M=mast.

Turrets 1, 2, 3, 4, 5, and 6 fire on both broadsides..... 12 guns
Turrets 1, 2, 3, and 4 fire forward..... 8 guns
Turrets 3, 4, 5, and 6 fire aft..... 8 guns
Turrets 3 and 4 have no obstruction on either broadside.

guns either forward or aft, and twelve 11-inch guns on either broadside. Like the Brazilian and American *Dreadnoughts*, the German *Dreadnoughts* each have four of their main turrets along the center line, but they are elevated differently, being arranged on three horizontal planes of elevation, whereas the Brazilian and American ships have these four turrets on only two planes of elevation. The essential difference between the German and the Brazilian *Dreadnoughts*, however, is to be found in the arrangement of the two flanking turrets, which take the place of the central turret of the American all-big gun *Delawares*. In the Brazilian ships the deck is obstructed between these two flanking turrets of the center, so that each turret may fire on only one broadside, besides fore and aft; while in the German *Dreadnoughts* the deck is open between these flanking turrets of the center, and each of the two central turrets may swing around on its axis so as to fire on either broadside. The central turrets of the Brazilians have an arc of train of about 180 degrees, and can each fire fore, aft, and on one broadside,—that is, toward three cardinal points of the compass,—while the Germans give their corresponding turrets an arc of about 270 degrees, so arranged that their guns may fire toward any one of the four cardinal points of the compass without altering the vessel's position.

GERMAN NAVAL CORRESPONDENCE

BERLIN, September 15, 1908.

Germany in South America.

Remarkable confirmation of the suggestions with regard to German naval expansion and its relation to the United States, contained in my dispatch to THE NAVY last month, has since been furnished by one of Germany's most eminent colonial authorities, Dr. Rohrfach. He contributes a highly important article, entitled "Germany Among the Peoples of the World," to an influential Berlin paper, and in view of its direct bearing upon a vitally interesting subject, I make no apology for considering it at some length. Dr. Rohrfach—who, I may mention, has traveled all over the globe and is recognized as a scientific politician—is of the opinion that the best colonies are those which are most suitable for habitation by white settlers, offering a field for development and a sound investment for superfluous German capital. Southwest Africa, the most promising colony of the Empire, can support at the most one hundred thousand people. A great future, therefore, it has not, unless important mineral wealth should be discovered there, of which there are no signs at the moment. Under these circumstances, says Rohrfach, the stream of German emigration must be diverted to foreign countries, that is to say, to those in which the German may, without difficulty, retain his nationality. (The italics are mine, for the foregoing remark is not without its significance.) Dr. Rohrfach continues:—

"In this respect, the United States are not favorable to Germans, as there the German immigrant is quickly absorbed into the national population and thus lost to the Empire forever. Moreover, the economic policy of the United States is diametrically opposed to that of Germany. The Union is our keenest competitor in every branch of commercial activity. Infinitely better suited to our purposes is the Southern American Continent, and first and foremost comes Brazil. Here, in the three southern States, Rio Grande, Santa Catharine, and Parana, there dwell some half a million Germans. The territory is perfectly healthy and extremely fertile. German farmers located there export cattle, coffee, corn, tobacco, etc., and are excellent customers of the Fatherland. The Germans already form a considerable element in the three southern States, and if the Prussian Government had not, with unconceivable shortsightedness, prohibited emigration to Brazil in the fifties by the so-called von Heydt rescript, Southern Brazil would to-day have been essentially German in character. Unfortunately, in recent decades non-German emigration into Brazil has been more widespread than the German. But some years ago committees were formed in Hamburg and Bremen for the purpose of di-

verting emigrants from the United States to Brazil, and their records show that splendid work has been done during the short time they have been in existence. It is, of course, necessary that German settlers in Brazil and other South American States should be law-abiding citizens of the land of their adoption, this being no difficult matter, in view of the laxity with which laws in that part of the world are administered. Many politicians consider that emigration to the Argentine offers still better prospects. It is true that the Argentines are decidedly more fertile; but there the Germans will not succeed in becoming an important political factor. [Again the italics are mine.] Next to the native Argentinians it is the Italians who form by far the strongest element, and a German settlement there would be but a drop in the ocean."

There is very much more to Dr. Rohrfach's article, but the foregoing quotation is that of primary interest to the United States. An article of any character inevitably suffers from translation, and converted into English this one may not appear so significant as in its original German. There is, however, but little difficulty in reading between the lines a word of warning to Germans who contemplate making their home in one of the South American States. They are plainly enjoined to maintain their nationality and consider themselves loyal subjects of the Kaiser, ready to support by every means in their power the developments of "Weltpolitik" in that portion of the world; to which end it is advisable that they make themselves political factors of importance.

But German colonial enthusiasts do not confine their activities to home. This is evidenced by the following cablegram from Rio de Janeiro, which appeared in the papers a week or two ago:—

"The German Minister to Brazil, Herr Reichenau, has given a banquet in honor of the Brazilian Minister of War, Senhor Fonseca, who is departing on a confidential mission to Germany. Herr Reichenau expressed the hope that his visit would have the result of establishing a still closer friendship between Germany and Brazil."

Another cablegram, this time from Buenos Aires, to hand ten days ago:—

"Two hundred and fifty army officers gave a banquet in honor of the German instructors on Saturday night, at which the Minister of War presided. The German Legation was represented by Prince Hatzfeldt-Trachenberg, who spoke warmly of the intimate friendship existing between his country and the Argentine Republic."

Certainly no fault can be found with the Germans for making themselves popular where they deem it advisable; but there is more in these overtures to the Southern Republics than meets the casual eye. Coupled with Dr.

Rohrfach's recommendations, they assume a very significant aspect, and indicate beyond all doubt that the Imperial Government has more than a passing interest in those parts. As I remarked last month, there is a Prussian tradition to the effect that a course of persuasive diplomacy is the best means of preparing for successful violence. Berlin's immediate object (which, by the way, is conspicuously successful) is to make Washington regard Germany as an honest, peace-loving power, suffering under the baseless calumnies of hostile French and British journalists. As a matter of fact, the action of the German Government with regard to the Moroccan situation last week should convince impartial observers that Germany herself is the firebrand of European politics. These lines are written with the sole purpose of putting facts before American readers. There is no reason to doubt the sincerity of those friendly asseverations towards America which emanate from this country with remarkable regularity. They may be actuated by motives of undiluted cordiality; but the fact remains that the trend of Germany's "Weltpolitik" is in the direction of South America, and such a course must inevitably bring her into more or less forceful contact with the United States.

Forewarned is forearmed. Let Congress sanction a navy bill providing for an American fleet on the two-ocean standard, and there will be every probability of America and Germany continuing as good friends as they have been since the dawn of the present century. In the absence of such a fleet, the United States may pay very heavily for its too great confidence.

German Docks for Dreadnoughts.

It is a remarkable fact that, although Great Britain has a formidable fleet of 18,000-ton battleships and cruisers nearing completion, there are not more than two docks on the English coasts capable of accommodating these ships. Germany is making no such mistake. Not one of her 18,000-ton warships is anywhere near completion, but there are nevertheless eleven docks ready or in process of construction that will take ships of the *Dreadnought* class. Two of these are at Kiel, one at Wilhelmshaven, another is at Bremen (the Kaiser dock, belonging to the North German Lloyd, but reserved for Imperial use in case of emergency), and Blohm and Voss, of Hamburg, possess a fifth. Two huge dry docks are now nearing completion in the shipbuilding yard at Wilhelmshaven. Near Brunsbüttel, the North Sea entrance of the Kaiser Canal, two more large dry docks are to be built, while Blohm and Voss and the Vulcan yard are

building on the Elbe two floating docks, each of 35,000 tons capacity. A large floating dock, now building, is to be moored at Kiel, so there will be no lack of dock accommodation for the largest German vessels by the time they are in commission.

The Kaiser Canal.

The Möhlhörn scheme of an alternative canal to take the place of the famous waterway between the Baltic and the North Sea has been rejected by the commission appointed to investigate its merits. Full particulars of Herr Möhlhörn's plan were given in the July number of *THE NAVY*. Unfortunately, the commission has not published its grounds for rejecting what appeared, so far as could be judged from available data, a highly practicable solution of the problem confronting Germany with regard to communication between the two seas. The Kaiser Canal is now in process of being widened and deepened, and before the work is completed it is anticipated that at least fifty-five million dollars will have been expended. Meanwhile, congestion in the canal has been relieved to a slight extent by utilizing the River Eider as a passage from Rendsburg, situated on the canal, to Tönning, on the North Sea. The trip was made last week by five of the biggest torpedo boats, — *S 143* to *S 147*, — each of which displaces 525 tons, has a length of 231 feet, and draws nearly seven feet of water. This trip was the result of a former experiment, when smaller torpedo boats were sent along the same route, to demonstrate its safety for larger craft. Very naturally the result is hailed with great satisfaction by the naval authorities, who realize how invaluable the River Eider will prove in the event of hostilities breaking out with a power whose fleets are in the North Sea. The Kaiser Canal would then be taxed to its utmost to afford passage for battleships and cruisers of the fighting squadrons, let alone mosquito craft. It is now certain that these latter can be conveyed expeditiously and safely from Kiel to the North Sea, using the canal for only a few miles of the journey. Dredging operations are to take place in the Eider, but the experiment referred to proves that these are not really necessary to render the river navigable for the largest type of torpedo craft.

Naval Maneuvers.

The autumn maneuvers of the High Sea Fleet, commanded by Prince Henry of Prussia, came to an abrupt and unexpected conclusion last week. No official reason has yet been assigned for this sudden termination. The original program provided for the continuance of the

exercises until the second week in September, when the combined fleets were to assemble off Swinemünde and to laud a strong detachment at some point on the Pomeranian coast, for the purpose of determining to what extent a naval force is able to co-operate with an army of invasion. The force was divided into two squadrons, each of eight battleships; there were also two groups of scouts, each composed of five armored cruisers and two tenders. Four flotillas of torpedo boats, several coast-defense ironclads, mine laying, and other special craft also participated. A feature of the maneuvers was that practically every vessel taking part was modern, and it will thus be seen that a very formidable fleet was concentrated in the Baltic up to last week.

It is generally understood in service circles here that the maneuvers were stopped owing to the momentarily alarming development of the situation in Morocco. However that may be, the squadron left the Pomeranian coast and headed at full speed for Kiel fiord, whence, after taking in coal, it proceeded through the Kaiser Canal and reassembled off Heligoland. The evanescent friction engendered by the exchange of Sultans in Morocco is fast disappearing, so that it is quite possible the interrupted maneuvers will be renewed; this time, however, in the North Sea, which, after all, is the only possible battleground of the future, so far as Germany is concerned. Indeed, many naval men condemn the Baltic as a sphere of operations for German warships, contending that it is little more than a lake, and does not give officers and men that experience and self-confidence that comes from handling their ships in the roaring gales of the North Sea or in the heavy swell of the Western Ocean. German officers are thoroughly acquainted with the litany which British naval officers are supposed to chant regularly three times a day,—“Lord, when the ‘real thing’ comes, send us dirty weather and lots of it!”—and recognize the necessity of accustoming German crews to exercising in weather that would send a sturdy old tramp steamer scuttling for the nearest harbor of refuge. The North Sea, even during the summer months, as a yachting ground, leaves much to be desired; but in autumn, winter, and early spring it can give points to the much-maligned Bay of Biscay and beat it hollow for sheer, downright contrariness. Piercing winds of numbing coldness sweep the surface of the waters, blowing direct from the ice-bound coasts of Scandinavia. In certain months fog is a permanent feature of the weather, and a North Sea fog is said by those who know to be the most depressing thing on earth. Consequently there is a good deal of stifled grumbling, both in the wardroom and the

forecastle, when the ship's bows are turned into these dreaded waters; and the multitudinous shoals with which the littoral of Schleswig-Holstein and Friedland abound keep the skipper and navigating lieutenant in a continual state of high tension till the welcome vastness of the open sea is reached. Considering the phenomenally dangerous character of the German coastline, it is nothing short of miraculous that so few mishaps occur to vessels of the Imperial Marine. There is, of course, the comparatively light draught of existing German battleships and cruisers to be taken into consideration, and it may be that the introduction of 18,000-ton vessels into the cruising fleets will result in the more frequent occurrence of accidents. But, so far, German sailors have proved themselves second to none in the art of navigation.

• *Voyage of the American Atlantic Fleet.*

I have remarked in a previous dispatch that the voyage of the United States Atlantic Fleet has been followed with closest interest by every one connected with the Imperial Marine, including the Navy Department officials themselves. The marvelous organization which resulted in the great fleet of armored ships arriving at designated points even ahead of schedule time has met with general recognition; and it was, therefore, with pained surprise that I recently read a paragraph on this subject, written by no less an authority than Count von Reventlow, a former officer in the German Navy and one of the most prominent naval experts in this country. Literally translated, the paragraph runs as follows:—

“A great fuss has lately been made of the fact that the American battleship fleet made its long voyage without mishap. It was certainly a respectable performance, and, considering the state of affairs prevailing in the American Navy, perhaps also a surprising one. But if measured impartially, one must say that the year's performance of the German High Sea Fleet stands above it. We are not usually fond of praising ourselves, but cannot refrain from doing so this time, as the material of our High Sea Fleet is not of the best, so far as fighting value is concerned.”

It is, perhaps, always wholesome to see ourselves as others see us, but what does Count Reventlow mean by “the state of affairs prevailing in the American Navy?” Unfortunately, he does not enlighten us on this important point, which might possibly furnish us with the clue to the mystery. As for the year's performance of the German High Sea Fleet, which, we are told, stands above that of the United States Atlantic Fleet, this has consisted of half a dozen short cruises in the peaceful waters of the Baltic, a venture or two out in the North Sea and

a much-advertised trip to the South Atlantic, where the ships called at the Azores and the Canary Islands.

The paragraph to which I have drawn attention appeared in the August number of *Ueberall*, a service magazine of which Count Reventlow himself is the editor.

H. C. B.

THE ITALIAN NAVAL MANEUVERS

September 15, 1908.

On August 27 what were by far the most comprehensive maneuvers ever held by the Italian Navy were brought to a conclusion, the umpires awarding to the Reds (A) the command of the sea. Practically every vessel capable of putting to sea in fighting trim was engaged in these highly interesting exercises, during which, for the first time on so large a scale, Italy put to the proof her offensive and defensive organization. The general plan of the naval period of the maneuvers, as given in the Italian service papers, is as follows:—

Two nations, A and B, of which the former has double the naval strength of the latter, have entered into hostilities with each other. A's primary object is to acquire absolute command of the sea, in order to eventually disembark on its opponent's territory an invading army. B, owing to its marked inferiority in fighting craft, cannot hope to give open battle to the A fleet, but must do all in its power to harry the enemy with a view to retarding the acquisition by A of the mastery of the sea. A is known as "Redland," and its territory is defined by the eastern coast of Sardinia, the north and northeast of Sicily, and the peninsular coast between Cape Spartivento and Monte Circeo. B, known as "Blueand," controls the coast which extends from the French frontier, marked by Cape Mele, to the point of Porto Ercole, together with the shores of all the smaller islands of the Tyrrhenian north of Monte Circeo. Between Porto Ercole and Monte Circeo there is a strip of coast which is regarded as neutral territory. Four lines have been drawn on the maneuver charts, representing territory on which no landing must take place; these join Cape Mele with Cape Corso, Cape Pertusato with Cape Testa (Strait of Bonifacio), Cape Carbonara (Sardinia) with Cape S. Vito (Sicily), and Cape Passero (Sicily) with Cape Spartivento (Calabria). The waters in which naval operations are allowed are thus rigidly limited.

The Blueand fleet suffered very considerably by a comparison with that of Redland, as will be seen from the following table of the opposing squadrons:—

REDLAND.

Battleships: *Regina Margherita*, *Benedetto Brin*, *Saint Bon*, *Emanuele Filiberto*, *Sicilia*, *Sardegna*, *Re Umberto*.

Armored cruiser: *Vettor Pisani*.

Gunboats: *Agordat*, *Urania*, *Iride*.

Mine-laying vessel: *Partenope*.

Torpedo craft: Eight destroyers.

Attached to this fleet were also the special ship *Liguria*, conveying an observation balloon and its accessories; one provision ship; two fleet colliers; a repair ship, and a distilling ship.

BLUELAND.

Battleship: *Regina Elena*.

Armored cruisers: *Varesco*, *Giuseppe Garibaldi*, *Francesco Ferruccio*.

Protected cruiser: *Piemonte*.

Gunboat: *Coatit*.

Mine-laying ship: *Tripoli*.

Torpedo craft: Twenty torpedo boats and four submarines, to which latter the protected cruiser *Lombardia* was assigned as mother ship.

Redland was not so weak in torpedo craft as the table indicates, as other destroyers and boats not appearing in the foregoing lists were allocated to her for purposes of coast defense. Eight of these craft were at Maddalena, four at Gaeta, three at Messina, and three held in reserve to guard temporary bases which might be established by the Red fleet. Blueand also had other torpedo craft: four stationed at Spezia, three at Genoa, and three at Vado.

The immense superiority of the Red fleet lay in its comparatively large number of battleships, the first four of which are fairly modern units and capable of both hitting and running away. The three others, however, cannot be classed as up-to-date ships, as, although the *Sicilia*, *Sardegna*, and *Re Umberto* carry the imposing armament of four 13.5-inch guns apiece, these huge weapons can fire only one shot every two minutes; besides which the vessels themselves are terribly slow and unhandy. The weak point of the Red fleet was its paucity of vessels capable of carrying out scouting duties. To overcome this difficulty there was the observation balloon, which played a very important part in last year's maneuvers, and a photograph of which was reproduced in the December number of *THE NAVY*. It appears that this balloon can ascend from the bridge of the cruiser to a height of some 1500 feet, and from the car it is possible to view the horizon within a radius of fifty miles. The Italian Government is paying considerable attention to the use of balloons in connection with naval operations, as it is recognized that under favorable circumstances they may

adequately replace scouting vessels, which are notoriously expensive to build.

The Blue fleet had the advantage of speed and homogeneity, this allowing it greater freedom of action in the strategic operations and placing it in the power of the commanding officer to accept or to decline battle as his judgment dictated; added to which it was possible for the Blues to choose their own range, in the event of being forced into a general action. Furthermore, its four submarines constituted a factor of great importance, and made blockading tactics by its opponents a highly risky undertaking. These vessels were made good use of during the course of the maneuvers, as will be shown in a succeeding paragraph.

"War" was officially "declared" in the early morning hours of August 17. At this moment the B squadron was lying off La Maddalena (one of A's bases), though its exact position was unknown to the Red commander. A's second division, consisting of the *Re Umberto*, *Sardegna*, *Sicilia*, *Pisani*, and four destroyers, commanded by Rear Admiral Rocca Rey, was lying in the roadstead of Maddalena itself. The first division of the A fleet, comprising the four modern battleships and several destroyers, under the command of Vice Admiral Grenet and Rear Admiral Faravelli, was at a point off the Sicilian coast four hundred and twenty knots from Maddalena. It goes without saying that a dangerous division of this nature would not have been made if the "real thing" was an actuality; but under the circumstances it was deemed advisable by the Italian naval authorities to split up the squadron so as to allow the weaker (B) fleet an opportunity of equalizing its position. The logic of such an arrangement is lacking, however.

At 8 a.m. on August 17 Rear Admiral Gagliardi appeared with his B squadron at the entrance of the Maddalena roadstead. The vessels were huddled together in a formation which would have invited prompt disaster if the enemy's gunners had been prompt enough to take advantage of the situation. It appears, however, that the Blue commander adopted this formation for the purpose of deceiving the opposing officers with regard to the force at B's disposal. No move was made by A's second division, but the mine-laying ship *Tripoli* was sent to the mouth of the roadstead and there sowed an extensive mine field, through which Admiral Gagliardi did not venture to take his squadron. He remained off Maddalena and thus kept A's second division out of action, employing himself during the day by sending in several destroyers in a vain attempt to wreak damage on the big vessels of his opponent. The unceasing vigilance of the gunners on Redian's craft rendered all these attempts abortive.

The B squadron, without its most formidable fighting unit,—the *Regina Elena*, which was left before Maddalena,—now turned its bows in the direction of Naples, whither it proceeded at a 17-knot gait, shelling en route the hostile signal stations of Ponza, Ventotene, and Ischia. The intention was to reach Naples the same afternoon, bombard the city and create a panic among the inhabitants, and then to make tracks for an arranged rendezvous, before the Red admiral could arrive on the scene. This little program, however, had to be abandoned, for when B squadron was within thirty knots of Naples, the ships comprising A's first division were sighted on the horizon. A hasty survey convincing the Blue commander of his opponent's overwhelming preponderance, he wisely declined to accept a general action, and took to his heels, the superior speed of the units under his command easily enabling him to escape Admiral Grenet's vengeance. A wireless message was sent to the *Regina Elena* and the torpedo flotilla off Maddalena, ordering them to rejoin the flag; and this being done, Admiral Gagliardi cruised off the south coast of Elba, maintaining a strict watch over the entrances to the Tuscan Archipelago and sending out two fast destroyers to keep in touch with the enemy.

The blockade off Maddalena having thus been raised by the departure of the *Regina Elena*, A's second division, under Rocca Rey, steamed out of Maddalena and rejoined the flag of Rear Admiral Faravelli, during the afternoon of the 19th, the entire force then assembling under the supreme command of Admiral Grenet. It was at this stage of the operations that the Red fleet assumed the offensive, endeavoring to effect damage at various points on the enemy's coasts between Genoa and Spezia. Two A destroyers ran into the little port of Sestri Levante, where they landed a detachment and succeeded in destroying (theoretically) the railway which touches the coast at this place. The Blues, on the other hand, were the reverse of idle, and the same night two of their torpedo boats succeeded in making a surprise attack on the gunboat *Agordat*, which was torpedoed well within range and put out of action. The battleship *Regina Margherita* also came in for attention from these mosquitoes, but turned such a heavy fire from her rapid-fire battery upon them that they promptly drew out of range.

At dawn on the following day (August 20) the two fleets came within sight of each other off Cape Calvi (Elba), but the Blues declined battle and steamed rapidly towards Spezia, the principal Blue naval base, running under the protection of the heavy batteries there late in the afternoon. Admiral Grenet instituted a hot pursuit, and for several hours the stokers of both squadrons were

kept busy, while a heavy fire was directed against the rear ships of Blue's fleeing squadron, these replying with their stern guns. The distance, however, in the opinion of the umpires, was too great to render the fusillade efficacious on either side. The chase was enlivened by A's torpedo craft running forward and attempting to launch their torpedoes against the *Regina Elena*, which formed the rear guard of the Blues. Two of them approached too near, and were promptly ruled out of action. This loss was partly compensated for by the capture of one of B's destroyers, which fractured her propeller shaft during the chase and fell into the hands of the pursuers.

The B squadron had emptied its bunkers while escaping from Gnet, and was compelled to remain under the guns of Spezia for three days, coaling and taking in provisions. The A fleet thus temporarily gained undisputed mastery of the sea, and took advantage of it by theoretically laying Leghorn in ruins with a rain of high-explosive shells, playing havoc with the signal stations on the coasts of Blue-land, and severing the submarine cables connecting Elba with the mainland. Simultaneously a detachment of Red vessels proceeded to Portoferraio, on the Island of Elba, and landed six hundred or seven hundred bluejackets, who lost no time in erecting formidable batteries of heavy guns at that point, thus establishing a strong base designed to be provisional. By this time the Blue fleet had completed its business at Spezia, whence it sallied forth to try another fall with its powerful opponents. During the night of August 23-24, four battleships of the Red forces left for Genoa, leaving the cruisers at Portoferraio. Before morning dawned these were sharply attacked by B's torpedo craft, and, it is claimed, at least two of the cruisers were put out of action.

At this point it is clear that the Red admiral lost all touch with the opposing squadron, whose whereabouts were a complete mystery. Repeated attempts were made to locate the Blue force by the aid of the observation balloon, but a slight mist which arose during the morning annulled all these efforts. The mist later turned into a somewhat dense fog, and the crews of the A ships took advantage of the lull to turn in for a few hours' rest. A very choppy sea was running, and there was no reason for believing that the big ships of B squadron were not still at Spezia. Suddenly a shrill cry from the lookout man on the *Regina Margherita* brought everybody scurrying up on deck in double-quick time; every man rushed to his post with commendable promptitude, and not a moment too soon, for breaking through the fog banks came the hostile *Regina Elena*, *Garibaldi*, *Varese*, and *Ferruccio*, firing rapidly with every gun that could be brought

to bear on the A division and the recently constructed land batteries. They met with a prompt response from the Red gunners, and disappeared as rapidly and mysteriously as they had appeared, heading in the direction of Spezia.

At this moment Genoa was being attacked by four Red battleships, which opened a heavy bombardment at the very long range of seven miles. As no weapons capable of effective shooting at this range are mounted in the Genoa batteries, the umpires adjudged the shore batteries to be silenced; whereupon Admiral Gnet arranged his squadron in extended formation between Vado and Portofino, thus closely blockading Genoa. The Blue fleet made an unsuccessful attempt to beat off the blockading force during the night, but were repulsed after a sharp exchange of fire. Meanwhile the submarine *Otaria* had been secretly conveyed to Genoa from Spezia, and the next morning she was sent out to try her fortune against the big ships of Admiral Gnet's squadron. The battleship *St. Bon* fell an easy victim, the submarine approaching to within a few cable lengths before being discovered. The *Otaria* was followed by her three sister vessels, all of whom succeeded in passing beneath the blockading fleet and arriving safely at Vado.

The next two days were characterized by frequent torpedo attacks upon the Red squadron. On the night of August 25-26, four Blue torpedo boats put the *Emanuele Filiberto* and the *Sicilia* out of action; on the evening of the 26th the submarine *Glauco* torpedoed the armored cruiser *Pisani*; and on the 27th the *Re Umberto* was surprised and torpedoed by a Blue destroyer. Gnet's force was thus reduced to only three capital ships, the *Benedetto Brin*, *Saint Bon*, and *Regina Margherita*, and therefore could not logically be said to have retained command of the sea. At this juncture, when the maneuvers promised to develop in a most interesting manner, the authorities intervened, as it was desired to justify the development of the second period, which was more of a military nature. The naval section of the maneuvers was accordingly concluded.

So far as tactics or strategy are concerned, it cannot be said that these maneuvers conveyed any definite lesson, but the Italian Admiralty may, of course, be in possession of data to which outsiders have no access. The original plan was to conduct the operations in the Adriatic, with a view to determining to what extent the available defenses on the eastern coast were capable of dealing with an aggressive move on the part of Austria. At the last moment, however, it was decided not to gratuitously wound Austrian sensibilities by assembling a powerful Italian fleet almost within hail of Pola. But the main

idea can be traced throughout the plan of these maneuvers. The two opposing fleets were arranged at respective standards of strength closely corresponding to the relative naval positions of Italy and Austria, a circumstance which has evoked some acrid comment in the Viennese journals. The writer is informed that the manner in which all torpedo craft, destroyers, boats, and submarines were handled has been highly commended by the naval officers acting as umpires and not less so by the naval attachés of foreign powers. The submarine crews, in particular, evinced an excellent knowledge of their complicated work, which is all the more praiseworthy in view of the fact that these vessels are quite an innovation in the Italian Navy. Observation by balloon did not give results so satisfactory as those of last year, but this is attributed to the hazy weather which prevailed during practically the entire duration of the maneuvers.

While, as previously stated, the command of the sea was awarded to the Red fleet, it is quite on the cards that if, instead of intervening, the authorities had allowed the scheme to be worked to a conclusion, Blueland would have regained the mastery within twenty-four hours, considering that the Blue admiral had still a powerful squadron of armored ships to bring against the remnant of the Red fleet. The one certain conclusion to be drawn from the exercises is that the defenses of Genoa and other peninsular ports are hopelessly inadequate efficiently to protect the enormous stretch of littoral they were originally destined to guard. It is therefore probable that the Italian Navy Department will recommend the dismantling of these costly forts and the replacement of them with a system of mobile defense, in the shape of torpedo flotillas, which are much less costly and, as the maneuvers proved, infinitely more effective.

H. C. B.



FROM AN OFFICIAL PHOTOGRAPH

THE WRIGHT AEROPLANE BREAKING THE WORLD'S RECORD

The aeroplane, guided by Mr. Orville Wright, is making a turn around the northern end of the military parade ground at Fort Myer, Virginia, on September 12, 1908. On this occasion Mr. Wright remained aloft with his aeroplane 1 hour 14 minutes 24 seconds, this being his best record for distance,—and the world's record at that time,—although his brother, Mr. Wilbur Wright, at Le Mans, France, has since then bettered this record. The framework on the left of the picture represents part of the starting tower, and near its base is the single-wheeled truck upon which the aeroplane rode in commencing its flights. The trees in the background are within the walls of Arlington National Cemetery, where Lieutenant Selfridge, who was killed in the accident of September 17, is buried.



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THE WRIGHT AEROPLANE READY FOR THE FORT MYER TESTS

This view, one of the best yet secured of the Wright aeroplane, was taken about September 1, after the aeroplane had been assembled in the balloon house of the Signal Corps at Fort Myer, and just before it was transferred to the temporary wooden shed on the parade ground. The photograph was taken from the rear of the aeroplane, and brings out the construction in detail, showing the simplicity of the machine. At the right of the picture are the horizontal planes in front, attached to the skeleton-like skids upon which the craft alights; at the left, the vertical rudders at the back, with the intertwinng propellers flanking them. The propeller nearest the front of the picture is the one that came in contact with the wire that connected the top of the rudder frame with the aeroplane, causing the accident of September 17. The shape of the propellers and the concaves of the surfaces of the main planes can also be seen. The uprights connecting these main planes are of wood, covered with aluminum, and so arranged that they are easily detachable. Their ends are connected with bracing wires made of high-tensile coppered-steel.

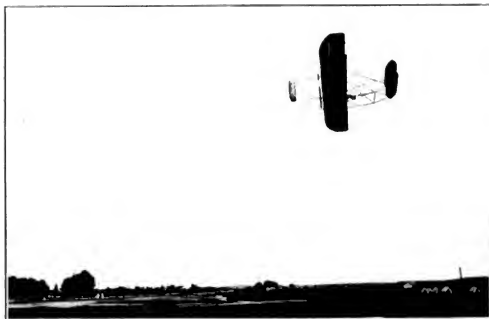
AERONAUTICS IN THE NAVY

The general outlines and general method of operation of the Wright Aeroplane have been made fairly clear to the public by illustrations and articles which have appeared in the daily and periodical press. However, there has been little so far to indicate some of the most important and essential details of it. A brief description, going somewhat into detail, may, therefore, be of interest.

The main planes, so called, are two in number, one above the other, with the operator, engine, and controlling devices situated between them and at the center of their length. They are each about forty feet long, but instead of being actual planes, are curved surfaces. The front and rear edges of these surfaces and any lines on them parallel to these edges are straight lines,—the curve being that of the surface of a cylinder of varying curvature. These surfaces have their concave, or bearing, side down. In addition to the engine and twin propellers, the controlling devices consist of two small

planes in front, the vertical rudder at the rear, and four movable tips to the main planes—i. e., the rear tips of each plane.

Contrary to the usual notion, the vertical rudder is not the principal device used for turning to the right or left. When in flight, the machine is made to turn to the right by depressing the rear tips of the right wings of the main planes, thus increasing the resistance on that side. As a matter of fact, in this evolution the rudder is usually moved in the opposite direction to that in which it would be moved if it were the rudder of a vessel in the water. That is, if the machine is to be turned to the right, the rudder, simultaneously with the depressing of the right wings, is moved to the left,—or its helm is put "starboard,"—thus counterbalancing to some extent the effect of the depressed wing tips. The rudder can, however, be used independently of the wing tips, for turning the machine to the right or left. The small forward planes



TAKING A TURN WITH PERFECT EASE

The aeroplane is rounding the turn at the northern end of the Fort Myer parade ground and travelling westward, and is getting ready to swing around for another trip southward toward the tents at the south end of the field, one thousand feet distant. In the picture, the tents are at the right; the low building at the left of these tents is the temporary shed in which the aeroplane was housed. In the accident of September 17, five days after this photograph was taken, the aeroplane had just crossed the pole between the tents, and, after making a turn to the south of the temporary shed, was headed eastward. It was in about the same position as shown in this picture, but was at the other end of the field and travelling in the opposite direction,—from right to left, instead of from left to right, as indicated here.

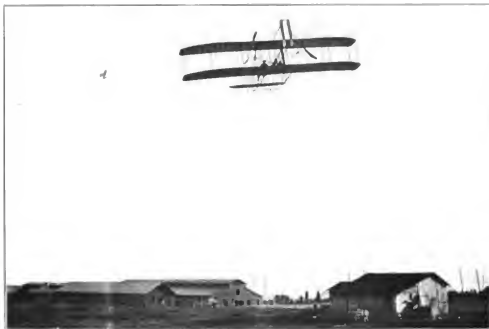
are used in raising or lowering the machine, by depressing or bringing back to the normal position their posterior halves. The propellers, for which Mr. Wright claims a high propulsive efficiency, are not mere reversed windmills, but have surfaces of true screw form. The combination of the front auxiliary planes with the rear main planes gives the construction, without using unwieldy surfaces, what it has of fore and aft stability, as it would be termed by a seaman.

The gas engine is of thirty-six horsepower, with a carburetor of novel design; and the whole apparatus, though made somewhat roughly in some of its details, is in its essential parts a finished engineering product, of refined scientific design. The engine is not of unusual lightness. In fact, the efficiency of the whole machine is such that great lightness is neither necessary nor essential.

Unusual interest was manifested by officers of the United States Navy stationed at Washington in the recent

aeronautical tests on the parade ground at the cavalry post at Fort Myer, Virginia. While those experiments were officially conducted in the interest of the United States Army, and were for the purpose of bringing the Signal Corps of that branch of the military service abreast of foreign armies in the matter of aeronautics, the opportunity of taking advantage of the tests of both the Baldwin dirigible war balloon and the aeroplane flights made by Mr. Orville Wright was not neglected by the Navy Department.

Captain William W. Kimball of the navy, who has long been interested in the problem, witnessed the Baldwin flights, from the arrival of the dirigible at Fort Myer until its final acceptance by the United States Army. Then, when the Fort Myer tests entered upon their second stage, and the flights of Mr. Orville Wright with his aeroplane began, Lieutenant George C. Sweet, of the Bureau of Equipment of the United States Navy, was officially de-



A TURN, VIEWED FROM THE REAR

A view taken a few minutes later than the preceding, showing the aeroplane making the turn at the north end of the parade ground, as it is swinging from a westerly to a southerly course. Mr. Wright is about to bring the craft to an even keel. The aeroplane is headed toward the cavalry stables; before reaching them, it was brought around so that it was parallel to the stables on its journey to the other end of the parade ground, at a speed of nearly forty miles an hour. This view shows the two propellers, which revolve rapidly at the sides of the rudders at the rear.

tailed to represent the navy at those experiments, with instructions to prepare a complete report on the results.

The immediate result of the observations of Lieutenant Sweet has been his preparation of plans and specifications in the Bureau of Equipment for a squadron of four heavier-than-air flying machines suitable for naval purposes, to be used for scouting purposes in connection with the operations of the battleship fleet, and the scheme has been submitted to Secretary Metcalf for approval.

The Navy Department is in a position financially to use certain funds of the Bureau of Equipment for aeronautical purposes, and it is believed that some active interest will be taken in the matter in the very near future, although Secretary Metcalf is reported to have said that he will make no recommendation to Congress this year for building aeroplanes for the navy. In order to rise, alight, or remain on the surface of the water, the naval aeroplanes would have to be provided with some sort of boatlike structure beneath the aeroplane proper to serve

the same purpose as the wooden skids attached to the Wright aeroplanes for land use.

The Navy Department is to be congratulated upon the prompt manner in which it has taken advantage of the lessons gained from the tests conducted by the army. Up to the present time this new branch of military and naval science has been neglected in this country, so far as actual achievement is concerned. It is true that other nations have done but little in the direction of conquering the air for naval purposes, but that little has been an extremely important beginning in some of the navies.

Some months ago THE NAVY told of the successful use of the Italian war balloon *Drachen* in connection with the Italian naval maneuvers of 1907. Its services were extremely valuable and had a direct influence upon the tactics of the commanders engaged in the naval maneuvers. Photographs were taken, showing a bird's-eye view of the theatre of mimic war. It was also found that observers sent aloft in the *Drachen* were enabled, by the advantages

of altitude, to look below and observe the under-water maneuvers of submarines approaching the hulls of battleships. These submarines could not be seen in the water from the battleships themselves. It is also known that the Italians became interested in the naval application of the war balloon through the aeronautic experiments that were in progress at Toulon for the French Navy several years ago, which were interrupted by the death of Lieutenant Toussaint.

In the German naval maneuvers of 1908 a captive naval balloon, somewhat closely resembling the Italian *Drachen*, was used with considerable success. It was sent up in tow of a warship of the fleet and was hauled along through the air by that vessel. In this connection it is contended that with swift cruisers, especially the new scouts in the United States Navy, aeroplanes may be sent up and towed through the air.

Within the past month experiments with man-lifting kites have been carried out under the auspices of the British Navy, in the Solent, by Colonel Cody, the American inventor of these appliances. The kites were made captive and sent up from the deck of the destroyer *Zephyr*, tender to the Gunnery School. Three kites were made fast to one another, the lower kite carrying a man, who was enabled, by means of a telephone, to hold conversation with those stationed on the deck of the destroyer, while the aerial observer was soaring at an elevation of two thousand feet above the level of the sea. The British naval authorities are understood to be well satisfied with the results obtained. One foreign commentator says, in discussion of the Cody experiments:—

"Colonel Cody has been flying above a warship near St. Catherine's Point, perched on a kite, like Ariel on a bat's back. Scouting at a height of two thousand feet in the air, he has been able to keep in telephonic communication with the deck of the warship. It is as though the cruiser, or battleship, could spout, at will, a lookout mast two thousand feet high, from which the lookout man could sweep a great circle of sea with his glass. The danger is not so great as might be imagined, for the kite has been flown in a storm of shot and bursting shells, to be hauled down, at the 'Cease Fire,' untouched by a missile."

The aeroplane flights at Fort Myer were:—

- September 3: First flight, remained in the air 1 minute 11 seconds, covering a distance of three-quarters of a mile, encircling the parade ground one and a half times at a height of 35 to 45 feet.
- September 4: Second flight, remained in the air 4 minutes 15 seconds, covering a distance of three miles.
- September 8: Third flight, remained aloft 11 minutes 10

seconds, covering about seven miles, encircling the parade ground thirteen times.

September 8: Fourth flight, remained in the air 8 minutes, encircling parade ground four and a half times.

September 9: Fifth flight, remained in the air 57 minutes 30 seconds, encircling the parade ground fifty-eight times, being equivalent to a distance of about 40 miles, at 38 miles an hour, at height of from 30 to 160 feet.

September 9: Sixth flight, remained in the air 62 minutes, encircling parade ground fifty-five times, equivalent to 44 miles, at 37 to 39 miles an hour, at heights from 30 to 75 feet.

September 9: Seventh flight, Mr. Wright taking Lieutenant Frank P. Lahm with him as passenger in a two-man flight, remaining in the air 6 minutes 24 seconds, covering 5.2 miles, and encircling the grounds six and a half times.

September 10: Eighth flight, remained in the air 1 hour 5 minutes 42 seconds, breaking the world's record.

September 11: Ninth flight, remained in the air 10 minutes 50 seconds, circling the parade ground eight times, descending to make a motor adjustment, and ascending almost immediately afterward for another flight.

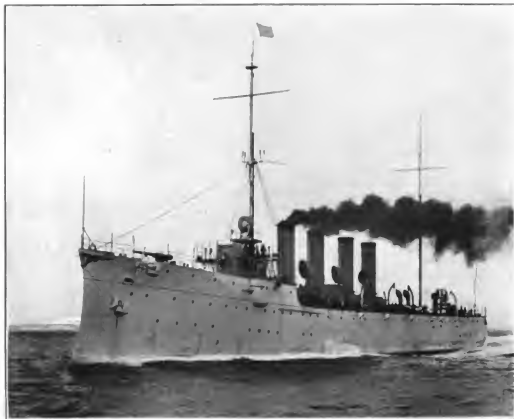
September 11: Tenth flight, remained in the air 1 hour 10 minutes 24 seconds, breaking his record of the previous day, and encircling the grounds fifty seven and one-half times.

September 12: Eleventh flight, Mr. Wright taking with him Major George O. Squire, of the Signal Corps of the army, president of the Army Board in charge of the tests, in a two-man flight, remaining in the air 9 minutes 10 seconds, covering 5.6 miles at average speed of 38 miles an hour.

September 12: Twelfth flight, remained in the air 1 hour 14 minutes 24 seconds, this being Orville Wright's best record for distance.

September 17: Thirteenth flight, Orville Wright and Lieutenant Thomas O. Selfridge started to make what was intended as a long-distance two-man flight, but after the aeroplane had been in the air 4 minutes and 18 seconds a propeller blade broke.

When the accident occurred, the aeroplane was about 75 feet from the ground. Mr. Wright shut off his motor at once, and tried to glide to earth, but when within 40 feet of the ground, the aeroplane fell, almost vertically, killing Lieutenant Selfridge and seriously injuring Mr. Wright, who has since been a patient in the post hospital at Fort Myer, and will not be able to make any more flights for some months. He has been granted an extension of nine months by the War Department. Meanwhile, during his convalescence, he will not only direct the building of a new aeroplane for entry in the army tests, but he will also turn his attention toward the development of a special type of aeroplane for naval use, to be entered in such tests as the Secretary of the Navy may order held.



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THE SCOUT CRUISER CHESTER

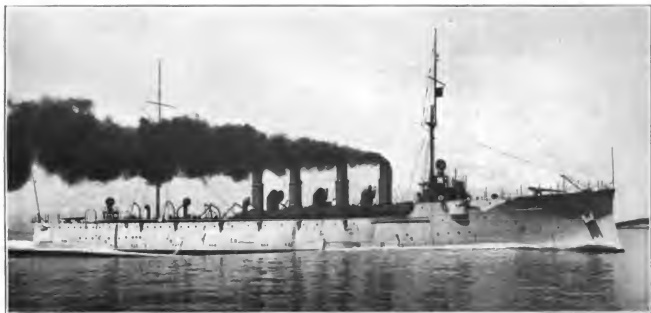
Steaming at 25.09 knots, on her tenth run southward over the measured-mile course, February 28, 1908, during her standardization test. Her best uncorrected run on this occasion was 26.22 knots an hour; the mean of the best pair of runs was 25.138 knots, and the mean of five high runs was 25.074 knots an hour.

THE SCOUT CRUISERS

Details of the competitive tests of the three new scout cruisers of the American Navy — the *Chester*, *Salem*, and *Birmingham* — have been arranged under the general direction of Rear Admiral J. E. Pillsbury, Chief of the Bureau of Navigation. These vessels are attracting unusual interest in naval and engineering circles, because each has a different method of propulsion. These methods will be tested in the competitive trials, for the purpose of securing data in regard to the relative value of the three types of engines. The *Chester* has four screws operated by Parsons turbines; the *Salem* has twin screws, driven by

Curtis turbines of the seven-stage type, 120 inches in diameter, making about 375 revolutions per minute at full speed; the *Birmingham* is fitted with twin screws operated by vertical triple-expansion engines with a stroke of 36 inches.

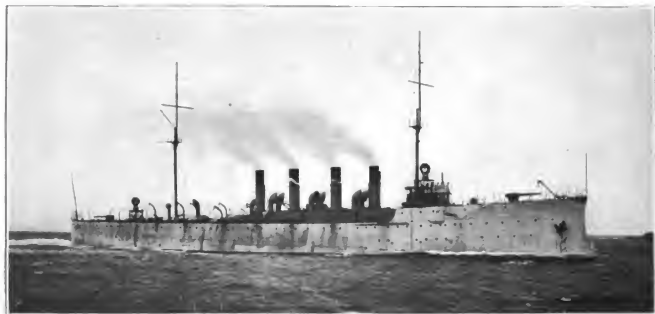
The purpose of the competitive tests is to find how much water per horsepower is required by each turbine and by the reciprocating engines, in order to determine which of the two types of turbines is the more satisfactory, and whether or not turbines are better than reciprocating engines. These records will show also the coal



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THE SCOUT CRUISER *SALEM*

Averaging a mean speed of 25.947 knots an hour, on her official four-hour trial trip of June 25, 1908, the brake-horsepower of her Curtis turbines being 19,200, and the revolutions of her propellers per minute for this speed being 378.39.



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THE SCOUT CRUISER *BIRMINGHAM*

Making 22.67 knots per hour, on her twelfth run northward over the measured-mile course. Her best uncorrected run over this course was at a speed of 25.192 knots an hour, and the mean speed of five runs over the course was 24.236 knots. The *Birmingham* is the only one of the three new scout cruisers that is propelled by reciprocating engines.

consumption, though the primary purpose of the tests is not to determine this.

These vessels were authorized by Congress in 1904,* and have recently gone into commission. They had successful preliminary trials last March, and since then have been engaged in shaking-down and other cruises, the *Chester*, under command of Commander Harry Braid Wilson, having returned, in the latter part of August, from a cruise to the Azores.

A measured-mile course has been laid off on the coast of Rockland, Maine, and as soon as the scouts are ready to leave the navy yard, where they are now being scraped and having minor alterations made, they will, early in October, steam over to Rockland to engage in the speed test. After this competition, according to the plans tentatively arranged, the scouts will be taken on a 2,000-mile cruise down the Atlantic coast, across the Caribbean Sea to the northern coast of South America, and back to the naval station at Guantanamo, Cuba. From there, after the completion of the long-distance runs, the vessels will return north together, probably to Hampton Roads, to be made part of the new third squadron of the Atlantic Fleet, which is to be organized there under the command of Rear Admiral Conway H. Arnold, formerly of the War College, who has for some weeks been in Washington on special duty in anticipation of this service afloat.

There will be no effort to make the cruises spectacular; and, while there may be no racing in the popular use of that term, the competition will be none the less interesting and valuable from the scientific naval point of view. The cruisers will make their runs over the Rockland mile course one at a time, but each will endeavor to carry off the scout cruiser honors for speed. On the two long cruises, the vessels will be required to sail together and in sight of one another at all times. The regular Board of Inspection and Survey, with a rear admiral as president, will be on one of the ships, while there will be a special board on each of the other two. Each officer will be specially detailed to make certain observations, — some

noting the action of the engines, others the boilers, furnaces, coal and water consumption, and the behavior of the craft in different kinds of seas. Upon these tests may hinge the question whether the turbine is to supplant the reciprocating engine in the American Navy.

In their preliminary trials last spring over the measured mile, the best uncorrected run made by the *Birmingham* was 25.192 knots, on March 11; by the *Salem*, 26.885 knots, on June 23; and by the *Chester*, 26.22 knots, on February 28. On their full-speed four-hour preliminary trial runs, the mean speed of the *Birmingham* on March 12 was 24.325 knots, that of the *Salem* on June 25 was 25.947 knots, and that of the *Chester* on March 1 was 26.52 knots, while starting with 950 tons of coal each. The radius of action of the *Birmingham* was 1,730 nautical miles, of the *Salem* 1,434 nautical miles, and of the *Chester* 1,471 nautical miles. They were required to make 24 knots an hour in these full-speed trials.

In their 24-hour endurance runs, when they were required to make 22.5 knots per hour each, the *Birmingham* on March 14 attained a mean speed of 22.665 knots on an indicated horsepower of 10,760; the *Salem* on June 30 registered 22.536 knots an hour as her mean speed at an indicated horsepower of about 10,378; while the *Chester* on March 3-4 attained a mean speed of 22.779 miles per hour. In the 24-hour trials at 12 knots an hour, the *Birmingham* on March 13 attained a mean speed of 12.228 knots; the *Salem* on June 26-27 a mean speed of 11.937; and the *Chester* on February 28-29 a mean speed of 12.2 knots an hour. The radius of action calculated for this speed on these occasions was 5,643 nautical miles for the *Birmingham*, 6,269 nautical miles for the *Salem*, and 6,338 nautical miles for the *Chester*.

The *Birmingham's* vibration was much greater than that of either of her two turbine-propelled sisters, especially when running at high speed, a fact gratifying to those who advocate the turbine and believe that the age of reciprocating engines for large warships has about passed.

Cruiser	Builder	Engines	Screws	Normal displacement, tons	Normal draught	Full load displacement, tons	Full load draught	Bunker capacity, tons	Horse-power	Knots contract speed
<i>Chester</i> . . .	Bath Iron Works	Parsons turbine	Four	3750	16 ft. 9 in.	4687	19 ft. 14 in.	1250	16,000	24
<i>Salem</i> . . .	Fore River Co.	Curtis turbine	Twin	3750	16 ft. 9 in.	4687	19 ft. 14 in.	1250	16,000	24
<i>Birmingham</i>	Fore River Co.	Reciprocating	Twin	3750	16 ft. 9 in.	4687	19 ft. 14 in.	1250	16,000	24

THE GRADE OF VICE-ADMIRAL

Congress will again be urged, when it meets in December, to add to the list of officers of the navy two vice admirals. If the request is granted, one of these vice admirals will be placed in command of the Atlantic battleship fleet and the other over the Pacific fleet of armored cruisers. Secretary Metcalf strongly urged this addition of grade last winter, in his annual report, in his statement before the House Naval Committee, and in other communications to Congress. In doing so he but reiterated the recommendation which had been just as strongly presented, but without avail, by former Secretaries Morton, Bonaparte, and others of his predecessors. Shortly before his death former President Grover Cleveland, under whose administration the "new" navy was given such impetus, urged the creation of this grade. Other Presidents have also done so, as has President Roosevelt in his annual messages.

It is difficult to understand why Congress fails to respond to this service sentiment, and why there has been no incorporation into legislation of so important an idea after reading the reports of successive Secretaries of the Navy and studying the official tables presented by the office of Naval Intelligence, which show the number of flag officers assigned to sea commands and the composition of their fleets and squadrons. In his concurrence with those of his predecessors who have urged the advisability of adding two vice admirals to the list of officers of the navy, Secretary Metcalf, last winter, said:—

"The modern practice of maneuvering considerable aggregations of warships under single command renders this highly desirable, in order that there may be grades of rank suited to the control of squadrons, divisions, and fleets, and for the prompt and systematic direction of groups of naval vessels, whether small or large. A navy which can send to sea a fleet of sixteen battleships and which has one officer of the supreme rank of admiral should have at least two officers of the next lower grade, that of vice admiral, as an essential to a complete equipment.

"As we have no vice admirals, an officer in chief command of one of our most powerful fleets may at any time, upon visiting some foreign port, find himself in a humiliating position of subordination to some vice admiral in the service of a country that has few first-class vessels of war. The advantages of filling the gap that now exists in the naval list between the admiral and the rear admirals will be conceded; and the necessity for the existence of such officers will doubtless become still more apparent on

the next occasion when vessels of our navy are called upon to coöperate with those of other nations in preserving the peace in some turbulent quarter. When that happens, the nation having the ranking officer on the ground naturally takes the lead, as that officer must by virtue of his rank command, and is thus charged with the important function of directing the entire combined movement. It is not appropriate, it is not in the general interest, that the United States should be relegated to a subordinate position at such times, merely because some other Government may happen to have present an officer of the rank of vice admiral. Service and political reasons, therefore, alike support the conclusion that such grade would be highly useful to the present organization of the navy."

Even the creation of two vice admirals would not place the United States Navy on an equal footing with foreign navies. In order to do that, our Atlantic and Pacific fleets should each be commanded by an admiral and each would have to have two vice admirals. The recommendations that have been made for some years now and that have been ignored by Congress have not asked for anything more than the revival of the rank of vice admiral. It would have been an opportune time for Congress to have done this last May, before the departure of the Atlantic fleet for Australia, Japan, China, India, and the Mediterranean, where matters of precedence are of great importance; and, since the fleet is not scheduled to return to this country before February 22, 1909,—twelve days before the adjournment of the Sixtieth Congress,—next December would still be an opportune time for this legislation.

SEA COMMANDS IN FOREIGN NAVIES

England, Germany, and the United States are the only countries having the rank of admiral of the fleet, or its equivalent, admiral of the navy. England has six officers on the active list holding this flag rank, while Germany and the United States each have one; in the case of the United States the grade was created for Admiral of the Navy George Dewey, and will pass away with his death. All the flag officers on the active list of our navy, with the exception of the Admiral of the Navy, are rear admirals. There are three grades above this in foreign navies. All seven of the principal naval powers have the grade of admiral, except France and the United States, England having thirteen officers of this rank, Germany

and Japan each having five, Austria three, and Italy one. All of these countries, except the United States, have the grade of vice admiral. England has twenty-two vice admirals, a number equal to all of our rear admirals on the active list; Japan has twenty vice admirals, Germany twelve, France fifteen, Italy nine, and Austria three.

England has four and a half times as many flag officers of all grades as we have; Japan comes next, with two and a half times as many; France next, with twice as many; and Germany and Italy have each thirty-six, or one and seven-tenths times as many. Last April we had twenty-one flag officers of all grades; and at the retirement of Rear Admiral R. D. Evans, on August 18, there were but twenty-five flag officers, the number having been slightly increased by the advancement of several captains who were additional numbers in the list. The number will not remain at twenty-five, because the retirement of extra numbers creates an equal number of vacancies in the list of flag officers, no promotions being made when they retire.

The United States is now generally regarded as ranking second in tonnage to Great Britain in the matter of warships; and taking the British Navy list as a standard, she should have only two and seven-tenths times as many flag officers as the United States, instead of more than four times as many; or, with Great Britain as a criterion, the United States Navy should have fourteen or fifteen more flag officers than at present. Taking the French or German navies as the standard, and comparing their warship tonnage with that of the United States, the number of our flag officers should be increased by twenty-four or nineteen, respectively; and taking any one of the other four Powers as a standard would mean a greater increase. Congress was told last winter that no increase in the number of flag officers was proposed at the present, however, but that additional rank for a few of the present number was proposed, in order to secure proper recognition abroad for the American people through their representatives, the commanders of American fleets and squadrons.

THE LAW OF INTERNATIONAL COURTESY

A remarkable fact connected with the failure of the United States to give its naval commanders-in-chief suitable rank is that for many years the United States Navy has been used as a school for naval officers representing European, South American, and Asiatic countries. Prominent among these countries have been Prussia and Japan. Prussia had a number of midshipmen on board American ships for instruction about 1848. Japan has sent numerous midshipmen to the United States Naval Academy, the

most recent having left that institution but a few years ago. Notwithstanding the rôle of international naval teacher, America has allowed her foreign pupils to outrank her own naval representatives abroad, Germany and Japan both having the grades of admiral and vice admiral, while America has neither, although she has a larger navy. Even Sweden, Norway, Holland, Spain, Turkey, and Brazil have both grades. Greece has the grade of admiral; Denmark, Argentina, Chile, and Peru have that of vice admiral. The fleet now about to visit Japan has with it rear admirals and captains who were instructors at the Naval Academy when certain Japanese vice admirals were students there. This particular case is the result of more rapid promotion in the Japanese Navy than in ours, and of the fact that we have no vice admirals.

The rules of international courtesy require that when two flag officers meet, the one of lower rank salutes and makes the first visit. The salute to which he is entitled on leaving the other's flagship is less than the one he must give the man of higher rank when his visit is returned. Precedence in all official international relations depends upon the rank of the officers and not on the relative importance of their commands. Since we have no flag officers aloft above the grade of rear admiral, our fleet and squadron commanders have always been accustomed to giving more than they receive in the matter of honors and distinction and to yielding to foreigners in matters of precedence, much to the mortification of Americans who are familiar with these facts.

ADMIRAL SPERRY OUTRANKED

Japan has two squadrons commanded by vice admirals, with rear admirals second in command; and the combined strength of these squadrons is probably not equal to two divisions, or one-half, of the Atlantic battleship fleet now on its way to Manila. If all of these Japanese ships should be assembled, Admiral Togo would take command, making one admiral, two vice admirals, and four rear admirals in the fleet. Even if other vessels should be added to these ships, it is not likely that the whole would be as powerful as our fleet. With this state of affairs the disparity in rank in the flag officers will in a way be a subject of national humiliation, for if a country itself does not properly respect its own representatives and allows them to take a lower position than they otherwise should occupy, that country is bound to suffer in the estimation of foreigners, who will naturally ask why so large a fleet is not commanded by an admiral, with a vice admiral as second in command. They might ask whether the United States Government is too poor to pay the

salaries of the higher grades, or whether the American people fail to regard their admirals as the equals of those in other navies. In order to be on a footing with foreign navies, that portion of the Atlantic fleet which is now in the Orient should be commanded by an admiral, with a vice admiral as second in command, and two rear admirals as division commanders, and the ships that are left in the Atlantic should have a vice admiral in command.

England has two fleets commanded by admirals, with a vice admiral as second in command in each, and these are followed by two rear admirals in one and one rear admiral in the other. One of these fleets has fourteen battleships, six armored cruisers, and smaller craft; the other has six battleships, four armored cruisers, and smaller craft; while the United States Atlantic fleet has sixteen battleships and four auxiliaries, and there were six torpedo-boat destroyers with it on the road to Magdalena Bay, with only a rear admiral in chief command and three rear admirals in command of squadrons and divisions. There are five other vice admirals in command of fleets and squadrons of Great Britain. Germany has one fleet commanded by an admiral, with two vice admirals and four rear admirals under him. This fleet comprises sixteen battleships, four armored cruisers, six cruisers, and four attached vessels.

OUTRANKED IN AUSTRALIA

In Australia the Atlantic battleship fleet fell in with the commander-in-chief of the Australian Squadron, Vice Admiral Sir Richard Poore, Bart., a vice admiral with nine cruisers under his command. His flagship, the *Powerful*, left Sydney in July for Suva on her way to Auckland, to await the arrival of the American fleet, but left there in order to welcome the fleet on its arrival at Sydney. In China the British Squadron of four armored cruisers, two cruisers, two gunboats, some of which are very small river boats, seven torpedo-boat destroyers, and seven attached ships is commanded by a vice admiral. At the beginning of the present year our Pacific armored cruiser fleet, commanded by Rear Admiral James H. Dayton, with three rear admirals as squadron and division commanders under him, comprised eight armored cruisers, nine cruisers, six gunboats, two armored coast-defense ships, five torpedo-boat destroyers, and the *Rainbow*. Rear Admiral Dayton's force is now even larger. In the British, German, Japanese, Italian, or Austrian navies such a fleet would most probably be commanded by an admiral, with two vice admirals under him, one in command of vessels in the Orient and the other of the vessels on the American side of the Pacific.

OUTRANKED IN THE BOXER TROUBLES

Sometimes American naval officers are the only representatives we have in localities where important events transpire. When Edwin Conger, our former Minister to China, was besieged by the Boxers in Peking, our relations with China were largely in the hands of Rear Admiral Kempff, followed by Rear Admiral Remy, who were successively in command of the American naval forces at Taku. Both of these officers were outranked by foreigners. When the international relief column was sent overland to Peking, it was placed under the command of a British officer who outranked Major General Chaffee. When Commodore Perry visited Japan to open up that country to diplomatic intercourse, he found rank of the greatest importance. We did not have the rank even of rear admiral in our navy at that time, and Commodore Perry had to permit himself to be styled "Admiral," because the Japanese understood what that meant and did not know exactly what a commodore was. This acquiescence on the part of Commodore Perry signified to the Japanese the highest rank he could hold in the navy. Commodore Perry also insisted that the Japanese official who was to receive from him the copy of his credentials to convey them to Tokio for examination should have very high rank. At the present time the Japanese know the difference between a commodore and an admiral, and also the different grades of admirals, and that the commander-in-chief of our Atlantic Fleet is entitled to a salute of only thirteen guns, while their own vice admirals are entitled to fifteen guns, and Admiral Togo to seventeen guns.

THE SITUATION IN CONCERTED NAVAL ACTION

It is the custom in concerted naval actions by two or more nations for the senior officer, irrespective of nationality, to preside in councils of war, and perhaps to assume command of the combined forces. It makes no difference if that officer's own nation has the smallest force present. The mere fact that he holds the highest commission is what counts; and if the nation having the largest force wants to have one of its officers occupy the commanding position, it must give him the higher rank. England can be generally counted upon to have the ranking officer on the spot in concerted naval actions; and the United States, as a rule, can expect to have its commanding officer in second place in such affairs, if not lower, unless it increases the rank of some of its rear admirals. For instance, if there should be a concerted action such as that which occurred during the Boxer troubles in China,

the senior naval officer present would undoubtedly be either British or Japanese, and, although our naval forces in the Pacific are greater than those of any other country in that ocean, and, Japan excepted, are at present greater than all the others combined in the Pacific, a foreign officer would preside at all conferences, which would be held on board his flagship, at the time appointed by him, and he might even take command of the forces employed, as did Vice Admiral Seymour of the British Navy in the first Peking Relief Expedition.

THE RECOGNITION ACCORDED DIPLOMATS

American diplomatic agents to European capitals were formerly placed in much the same relation to foreign diplomats as our naval commanders have been in relation to foreign naval officers in all parts of the world, but

eventually Congress recognized that this state of affairs was beneath the dignity of the American people and detrimental to their interests, and provided for the appointment of ambassadors to the great Powers, thereby placing this country diplomatically on a par with others in the family of nations. Since this action was taken the prestige of the country has greatly increased and our representatives in Mexico and Brazil have been promoted to ambassadorial rank. Even now Turkey is thinking of seeking an arrangement whereby her new diplomatic representative to the United States may have the rank of ambassador, instead of that of minister. Similar increase of prestige and weight in international councils would be the natural result of the bestowal of the proper rank on American naval representatives, especially when these councils deal with naval matters.

SERVICE ITEMS

THE THIRD ATLANTIC SQUADRON

Plans have been worked out in considerable detail for the creation of a new Third Squadron of the Atlantic Fleet, which will constitute the main fighting force of the Atlantic coast of the country from now until the return of the First and Second Squadrons of that fleet under command of Rear Admiral Charles S. Sperry, on February 22. This Third Squadron will consist of nine or possibly ten vessels, all of which will be under the command of Rear Admiral Conway Hillyer Arnold.

The vessels officially designated to constitute this squadron, with one exception,—the *Dolphin*,—are all new vessels just commissioned. The squadron comprises the three newest battleships in commission, the two newest armored cruisers, the three new scout cruisers, and Rear Admiral Arnold's flagship, the *Dolphin*. Later, the *Iowa* and *Maine* will alternate as flagships, taking the place of the *Dolphin*. The intention is to have this force of new ships cross the Atlantic to meet the homecoming battleship fleet on its return from its voyage around the world. For the present, the three new scouts will not join the new Third Squadron, as they have their competitive speed tests to undergo.

The vessels of the new squadron are:—

Gunboat *Dolphin* (flagship); authorized 1883; 1,486 tons; speed 15.50 knots; 9 guns.

Battleship *New Hampshire*, delivered to the Government March 14, 1908; 16,000 tons; main battery 24 guns; speed 18.4 knots in final acceptance trial this month.

Battleship *Idaho*, delivered to the Government March 26, 1908; 13,000 tons; main battery 20 guns; maximum speed 18.4 knots in last December's trials.

Battleship *Mississippi*, delivered to the Government January 22, 1908; 13,000 tons; main battery 20 guns; speed a fraction over 17 knots in June.

Armored cruiser *North Carolina*, delivered to the Government April 27, 1908; 14,500 tons; main battery 20 guns; speed 22.48 knots in trials last February.

Armored cruiser *Montana*, delivered to the Government July 10, 1908; 14,500 tons; main battery 20 guns; speed 22.36 knots in her trials last April.

Orders were given for the *Idaho* and *Mississippi* to go to the Philadelphia navy yard on October 9, where the *Idaho* will remain till November 1, and the *Mississippi* till November 20; the *Montana* and *North Carolina* to the Norfolk navy yard on October 11, where they will remain till December 1; and the *New Hampshire* to the New York navy yard on October 11, to remain till November 10. All of these vessels will rendezvous under Rear Admiral Arnold's flag on December 1, rejoining the *Dolphin*, which will in the meantime cruise at the discretion of the squadron commander. They will be joined by the *Salem*, *Chester*, and *Birmingham* as soon as these have completed their competitive tests.

According to present plans, the *Dolphin* is only temporarily to serve as the flagship. Shortly after December 1 she may be replaced by the *Maine*. Later, the *Iowa* may replace the *Maine* when the Third Squadron goes toward Gibraltar to meet the Atlantic battleship fleet.

INCREASE OF THE NAVY

Twenty-five new vessels of various types, ranging from submarine torpedo boats to 20,000-ton battleships, were authorized for the United States Navy under the terms of the Naval Appropriation Act of May 13, 1908. That law carried a total of \$30,307,662 for the increase of the size and strength of the navy, including construction and machinery, armor and armament.

Since May the Navy Department and its various bureaus have been engaged in preparation for the beginning of work on these new ships of war, with the result that in the very near future practically all of them will be laid down in various private shipbuilding yards of the United States and in two of the Government navy yards. So well advanced are the preliminaries at the end of September that contracts have either been awarded or sought for all of these ships, with the exception of the two fourteen-knot fleet colliers.

At the top of the list of new construction authorized in the Naval Act of 1908 are the two first-class battleships, which are to cost, exclusive of armor and armament, not exceeding \$4,000,000 each, and be similar in all essential characteristics to the *North Dakota* and *Delaware*, which are already under construction and half completed at the yards of the Fore River Shipbuilding Company, at Quincy, Massachusetts, and of the Newport News Shipbuilding Company, at Newport News, Virginia. These are 20,000-ton vessels, and the two authorized in the spring are to have the same displacement. One of these new battleships of the 1908 building program, the *Florida*, will be built at the Brooklyn navy yard on the slip where the battleship *Connecticut* was constructed. The law requires the building of one of these ships in a Government navy yard, and the assignment of the *Florida* to the Brooklyn yard is in compliance with that provision. The sister ship, the *Utah*, is to be built by private contract, and since their approval early in September by President Roosevelt, the plans of the *Utah* have been in the hands of bidders who have been asked to submit proposals, to be opened at the Navy Department on November 9 for the construction of that vessel. These bids were asked on September 9, and sixty days were allowed the contractors for the competition. Inasmuch as the *Florida* is to be built in a Government yard, the only proposals that have to be sought in her case are those for the material required for the construction of the vessel. Bids have already been sought for the steel material to be used in the construction of the *Florida's* hull.

Besides the battleships *Florida* and *Utah*, the Naval Act of 1908 authorized the building of ten torpedo-boat de-

stroyers, eight submarine torpedo boats, two fleet colliers, and three new steam colliers. In addition to these twenty-five vessels that are about to be laid down, there are already under construction four battleships, five torpedo-boat destroyers, eight submarines, two fleet colliers, and two tugboats—twenty-one vessels granted in the Naval Acts of 1904, 1905, 1906 and 1907. Accordingly, the number of vessels actually under construction or about to be laid down is forty-six.

The ships under construction are the 16,000-ton battleships *South Carolina* and *Michigan*, authorized in 1905; the 20,000-ton battleships *Delaware* and *North Dakota*, authorized in 1906 and 1907; the 12,585-ton fleet colliers *Vestal* and *Prometheus*, authorized in 1904; torpedo-boat destroyers *No. 17*, *No. 18*, and *No. 19*, each of 700 tons displacement, authorized in 1906; torpedo-boat destroyers *No. 20* and *No. 21*, also of 700 tons displacement each, authorized in 1907; submarines *Nos. 13, 14, 15, 16, 17, 18*, and *19*, authorized in 1906; two large naval tugs, the *Palapasco* and *Patuxent*; and, besides these, there is building a submarine of the *Lake* type under an arrangement whereby it will be accepted if certain departmental requirements are met, in which event she will be known as *No. 28*.

THE CONTRACTS FOR THE NEW DESTROYERS

Under the terms of the Naval Acts of 1908, the ten new torpedo-boat destroyers are to have the highest practicable speed, and to cost, exclusive of their armament, not to exceed \$800,000 each. The law also requires that they shall be built by private contractors, not more than three of them to be awarded to any one builder. The bids for these ten destroyers were opened at the Navy Department on September 1. Naval officers were much interested in the plans and specifications which were submitted with the proposals. A desire was manifested by some that the ten destroyers be fitted to burn oil fuel, as are all new British destroyers. Others thought it better to make five of them oil burners and five coal burners, so as to give opportunity for actual comparison of similar ships under similar conditions of service. After the matter had gone to the Board on Construction, the Department, on September 19, awarded each of these five bidding companies the contract for the construction of two of the destroyers at the figures stated:—

No. 22 and *No. 23* to the Bath Iron Works, at \$655,000 each.

No. 24 and *No. 25* to the Newport News Shipbuilding and Dry Dock Company, at \$620,000 each.

No. 26 and *No. 27* to the Fore River Shipbuilding Company, at \$610,000 each.

No. 28 and No. 29 to the New York Shipbuilding Company of Camden, N. J., at \$695,000 each.
No. 30 and No. 31 to the William Cramp & Sons' Ship and Engine Building Company, at \$664,000 each.

All of the proposals contemplated vessels of 29½ knots speed. The plans and specifications provided that each of these vessels should have a trial displacement of about 742 tons, speed of not less than 29½ knots, and be equipped for burning oil fuel. The contracts call for 210 tons capacity of oil.

Another interesting feature of the plans adopted is the introduction, for the first time in the American Navy, of the Zoelly type of turbine in two of these destroyers. The contracts provide that the *Perkins* (No. 26) and the *Sterett* (No. 27), both to be built at the Fore River Works at Quincy, shall be fitted with the Curtis type of turbine, this class of turbine being the American make controlled by that company. The *Harrington* (No. 30) and the *Mayrant* (No. 31), which are to be built by the Cramps, are to be fitted with Zoelly turbines; while the other six—the *Paulding*, *Drayton*, *Roc*, *Terry*, *McCall*, and *Burrows*—are to be fitted with turbines of the Parsons type.

While little has been said about the characteristics of these ten new destroyers, it is learned by THE NAVY that their main characteristics will be as follows:—

Length on load water line...28½ feet.
Length over all.....293 feet 1½ inches.
Breadth on load water line...26 feet 1½ inches.
Normal (trial) displacement...742 tons.
Corresponding mean draught...8 feet 4 inches.
Full load displacement.....887 tons.
Speed.....29½ knots.
Shaft horsepower.....12,000 tons.
Oil fuel.....210 tons.
Battery—Five 3-inch semi-automatic guns.
Two 30-caliber Colt automatic guns.
Three 18-inch torpedo tubes.
Complement—Four officers and 85 men.

THE THREE NEW STEAM COLLIERIES

At the same time that bids for the ten destroyers were opened, proposals were opened for the three new steam colliers authorized last May. The Naval Act of 1908 authorized the Secretary of the Navy, in his discretion, to purchase three such colliers of American registry, having a cargo-carrying capacity of approximately 7,200 tons dead weight each, at a cost not exceeding \$525,000 each, and made an appropriation of \$1,575,000 for the purchase. At the time that this item was inserted in the

Naval Bill, as the Congressional hearings will show, it was generally understood that this appropriation was intended to secure the purchase of three steam colliers which had been built by the Fore River Shipbuilding Company for a commercial company in Boston. The Navy Department, after considering the question, reached the conclusion that the purposes of the service would be better served if the vessels were obtained from shipbuilders who were to be asked to submit tenders for the construction of the colliers. The legal branch of the Government decided that this would be done, and that it was not mandatory upon the Secretary of the Navy to purchase the colliers which had already been built for the commercial concern. When the tenders were first opened, the Maryland Steel Company was found to be the lowest bidder; but, instead of making the award to that company, the Department invited tenders a second time. These were opened on September 1, and it was found that William Cramp Sons offered three vessels of 7,620 tons at \$525,000 each, the New York Shipbuilding Company three vessels of 7,200 tons at \$570,000 each, the Newport News Company three vessels of 7,200 tons at \$524,000 each, and the Maryland Steel Company three vessels of 7,200 tons at \$479,600 each, under Class 1, and at \$498,600 under Class 2. Subsequently the award for all three of the colliers was made to the lowest bidder, the Maryland Steel Company, at \$498,600 each.

THE NEW FLEET COLLIERIES AND SUBMARINES

Proposals for the construction of the eight new submarines authorized in the Naval Act of 1908 will be opened at the Navy Department on November 2. No advertisement has yet been made for the two fleet colliers authorized by that Act: for the Department has been so busy with the plans for the battleships and other new vessels, and in making awards for their construction, that the consideration of the question of fleet colliers is now just being reached. Under the law these two colliers must develop a speed of 14 knots on trial, when carrying not less than 12,500 tons of cargo and bunker coal, and the requirement of Congress is that one of these colliers must be built in such Government navy yard on the Pacific Coast as the Secretary of the Navy shall direct. Secretary Metcalf has designated for this purpose the Mare Island navy yard. The cost of these colliers is not to exceed \$1,800,000 each, and toward the construction of both \$1,500,000 has already been appropriated. The only other fleet colliers, in the full sense of the term, yet authorized for the American Navy are the *Vestal*, which has already been launched at the Brooklyn navy

yard and is 95.2 per cent completed, and the *Prometheus*, which is 77.1 per cent completed at the Mare Island navy yard. The two new colliers authorized by the Act of 1908 will be very much like the *Vestal*.

The sum of \$3,500,000 is authorized for the eight new submarines.

NAMES FOR NEW TORPEDO-BOAT DESTROYERS

Very often considerable time elapses between the authorization of new warships and the choice of the names with which they are to be christened. This is certainly not the case with any of the vessels authorized in the Naval Act of 1908, all of which have had their proposed names selected and officially approved by President Roosevelt. Almost at the same time names were assigned, by authority of the President, to the five torpedo-boat destroyers of the Naval Acts of 1906 and 1907, which are now under construction, two of which are about one-fifth done and the other three about half finished. Notification of the President's choice of these names was sent to the various bureaus of the Department by Acting Secretary of the Navy Newberry on August 21. Prior to that time, these five vessels were carried on the records as *Nos. 17 to 21*. The names with which they will be christened are as follows:—

No. 17, building at the Cramps yards, Philadelphia, where she is 49.3 per cent completed, will be named the *Smith*, in honor of Lieutenant Joseph B. Smith, who commanded the *Congress* when she was sunk by the *Merrimac* on March 18, 1862, and was killed in that engagement.

No. 18, building at the Cramps yards and 46.7 per cent completed, will be named the *Lamson*, in honor of Lieutenant Roswell B. Lamson, who participated in the battle of Port Royal and the capture of Fort Walker and was commended by Rear Admiral Dupont for bravery.

No. 19, building at the New York Shipbuilding Company's works and 47.9 per cent completed, will be named the *Preston*, in honor of Lieutenant Samuel W. Preston, who was killed in the assault on Fort Fisher, January 15, 1865.

No. 20, building at the Bath Iron Works and 20.1 per cent completed, will be named the *Flusser*, in honor of Commander Charles W. Flusser, who was killed in action on the *Miami* during an engagement with the Confederate ram *Albemarle* near Plymouth, N. C., April 19, 1864.

No. 21, building at the Bath Iron Works and 20.1 per cent completed, will be named the *Reid*, in honor of Captain Samuel C. Reid, who commanded the privateer *Gen-*

eral Armstrong. He was attacked in the harbor of Fayal September 26, 1814, by boats from three British men-of-war. Captain Reid drove them off, killing and wounding 135 officers and men.

President Roosevelt has authorized the assignment of names to the ten new torpedo-boat destroyers authorized by the Act of May 13, 1908, and for the construction of which awards have just been made:—

No. 22, to be built at the Bath Iron Works, will be named the *Paulding*, in honor of Rear Admiral Hiram Paulding, who was distinguished for gallant service in 1812, was appointed by President Lincoln to put the navy in a state of efficiency in 1861, and held many responsible commands.

No. 23, to be built at the Bath Iron Works, will be named the *Drayton*, in honor of Captain Percival Drayton, who commanded the *Pocahontas* in the Port Royal expedition and the *Passaic* in the bombardment on Fort Sumter. He was Admiral Farragut's fleet captain in Mobile Bay and an officer of great capacity.

No. 24, to be built at Newport News, will be named the *Roe*, in honor of Rear Admiral Francis A. Roe, who engaged thirteen Chinese pirate junks in China seas in 1854, was commended for gallantry at Forts Jackson and St. Philip, advanced for service in the North Carolina Sounds in 1862, and received the thanks of the Cabinet for his special mission to Mexico in 1867.

No. 25, to be built at Newport News, will be named the *Terry*, in honor of Commander Edward Terry, who was commended for service on the *Richmond* at New Orleans and Port Hudson, gained the thanks of the army for co-operation in the reduction of Port Huron, and was in the battle of Mobile Bay.

No. 26, to be built at the Fore River Works, will be named the *Perkins*, in honor of Rear Admiral George H. Perkins, who was commended for service at the passage of forts and occupation of New Orleans, 1862, and by Farragut while commanding the *New London*, and also for his service in the battle of Mobile Bay.

No. 27, to be built at the Fore River Works, will be named the *Sterett*, after Lieutenant Andrew Sterett, who commanded the *Enterprise*, with which he won a brilliant victory in the Mediterranean over a Tripolitan cruiser of 14 guns and 80 men, which he captured without losing one of his own crew. For this feat he received a vote of Congressional thanks and a sword.

No. 28, to be built by the New York Shipbuilding Company, will be named the *McCall*, in honor of Captain Edward R. McCall, who was on the *Enterprise* in her engagement with the *Boxer*, took command after her

captain was killed, and gained a victory over the *Boxer*, receiving a gold medal from Congress.

No. 29, to be built by the New York Shipbuilding Company, will be named the *Burrows*, in honor of Lieutenant William Burrows, who distinguished himself at Tripoli, and died on the *Enterprise* during her fight with the *Boxer*.

No. 30, to be built by the Cramps, will be named the *Warrington*, in honor of Captain Lewis Warrington, who commanded the *Peacock* in 1814, captured the *Epervier* after an action of forty-two minutes, and was awarded a gold medal by Congress. He was Naval Commissioner from 1827 to 1830 and from 1840 to 1842.

No. 31, to be built by the Cramps, will be named the *Mayrant*, in honor of Midshipman John Mayrant, of South Carolina, who led the boarders in the fight of the *Bon Homme Richard* and the *Serapis*.

NAMES FOR THE SUBMARINES AND COLLIERIES

Practically all of our naval submarines have been given the names of fish. This custom is continued in the nam-

ing of the new under-water craft. On September 21 announcement was made that the seven submarines building at the Fore River Works, heretofore known as Nos. 13 to 19, are to have the names approved by President Roosevelt, as follows: *Stingray* (No. 13), *Tarpon* (No. 14), *Bonita* (No. 15), *Shapper* (No. 16), *Norwhal* (No. 17), *Grayling* (No. 18), and *Salmon* (No. 19). The new Lake submarine torpedo boat, which is being built under the 1906-07 appropriation, upon approval, will be named the *Seal*.

President Roosevelt announced that the following names had been selected for the eight submarines of the 1908 program, for which bids are to be opened November 2: *Carp* (No. 20), *Barracuda* (No. 21), *Pickrel* (No. 22), *Skate* (No. 23), *Skipjack* (No. 24), *Sturgeon* (No. 25), *Thrasher* (No. 26), and *Tuna* (No. 27).

The President has approved the selection of the names *Jupiter* and *Cyclops* for the two fleet colliers authorized this year; and the three steam colliers to be purchased from the Maryland Steel Company will be designated as the *Vulcan*, *Mars*, and *Hector*.

FOREIGN NAVIES

GREAT BRITAIN

LAUNCHING OF THE *ST. VINCENT*

England's fourth first-class battleship of the improved *Dreadnought* type, the *St. Vincent*, was successfully launched on Thursday, September 10, at the Royal British dockyard at Portsmouth. She was christened by Lady Beauchamp. She was laid down December 30, 1907. This vessel is the latest and greatest of Great Britain's *Dreadnoughts*. While the *St. Vincent* is only the fifth battleship of the *Dreadnought* type to take the water for England, this new vessel is in reality the eighth *Dreadnought* already launched for the British Navy, since the three armored cruisers of the *Indomitable* class are also all-big-gun ships that are no longer regarded as anything less than "battle cruisers," or "cruiser battleships."

The four other *Dreadnoughts* thus far launched for the British Navy are the *Dreadnought* herself, launched February 10, 1906, and in commission for two years; the *Bellerophon*, launched July 27, 1907; the *Téméraire*, which was launched August 24, 1907; and the *Superb*, launched November 7, 1907. The last three are sister ships of 18,600 tons displacement.

Only the most general facts have been made known officially about the construction of the *St. Vincent*, but a great deal of data is available unofficially from professional sources. While she resembles her prototype closely in general arrangement, she is larger in every respect and heavier.* The displacement of the *Dreadnought* is 17,900 tons; that of the *St. Vincent* is 19,250 tons, or 1,350 tons heavier. The vessel's launching weight was approximately 7,000 tons, and is greater than that of any other

Battleship	Authorized	Keel laid	Launched	Completed	Displacement, tons	Length, feet	Beam, feet	Draught, feet	Main armament, guns	Torpedo armament	Engines	Horse-power	Speed, knots
<i>Dreadnought</i>	1905	Oct. 2, '05	Feb. 10, '06	Dec., '06	17,900	520	82	26	10 12-in.	12-pdrs.	turbine	24,712	21.25
<i>St. Vincent</i>	1907	Dec. 30, '07	Sep. 10, '08	Dec., '09	19,250	530	84	27	10 12-in.	4-in.	turbine	25,000	21

On her first trials the *Dreadnought* registered 21.25 knots on 24,712 horse-power in an eight-hour run. During the measured-mile runs in the first trials she made as high as 21.6 knots speed on 27,518 horse-power. On her trials in 1907 her speed at 26,400 revolutions was 20.7 knots. Her draught was about 26 feet during her first trials, but when loaded with stores her draught increased to 30 or 31 feet.

vessel launched at the Portsmouth dockyard. Her length is 530 feet, her beam 84 feet, she draws 27 feet of water, and her turbines of the Parsons type are to develop a speed of 21 knots on from 24,000 to 25,000 indicated horsepower. Her armament will closely resemble that of the *Dreadnought*, but she will carry a number of 4-inch guns to repel torpedo attack, the 12-pounders of the *Dreadnought* being regarded as too small.

The *St. Vincent* was authorized only a little more than a year ago in the Parliamentary Act of 1907. There are two sister ships which will be launched within the next few months,—the *Collingwood*, which was laid down February 3, 1908, and the *Vanguard*, laid down April 2, 1908. With the launching of the *St. Vincent*, the building slip at Portsmouth becomes available for the laying down of the 20,000-ton battleship authorized at the session of Parliament last spring. The *St. Vincent* was launched with much of her armor in place, some of the plates weighing as much as fifteen tons. The best idea of the vast expanse of a battleship's deck is obtained while she is yet unfinished and before any barbettes and top-hamper are in their places. The upper deck of the *St. Vincent* just before she was launched seemed like a dockyard in itself.

THE SALVAGE OF THE GLADIATOR

The British cruiser *Gladiator*, which was sunk in collision with the American liner *St. Paul*, off the Isle of Wight on April 25 last, has, after more than four months of salvage operations, been placed on an even keel, in a last effort to save the vessel. This was successfully accomplished on Monday and Tuesday, September 7 and 8, and now the cruiser has been towed to the dockyard at Portsmouth for repairs and restoration. The salvage of this ship has been a long and tedious operation, due mainly to unfavorable weather and troublesome tides. Now that the salvage operations have been completed, no definite decision has been reached concerning the manner in which she is to be refitted.

The salvage steamer *Ranger* was for weeks moored by the *Gladiator's* side, but the weather was so bad at times that the *Ranger* had to seek shelter in Yarmouth harbor, and the other vessels were frequently prevented by the weather from assisting in the pumping operations, because they could not get alongside the cruiser. On August 21 an unsuccessful attempt was made by the *Antrim* to right the cruiser. The *Antrim* stood by the stranded vessel, in order to pull her upright; but after the cruiser had been partially raised she slipped back into the water. Huge "camels," or air-tight cylinders, were prepared at

the Portsmouth dockyard and sent to the scene of operations for use in raising the ship. The final determined effort to raise the cruiser was made on September 7. Five of the large "camels" were fixed on each side of the cruiser to support her, and from 6 o'clock in the evening of September 7 until 6 o'clock the following night five tugs hauled on the hawsers attached to the vessel's masts, until at last she was brought into a position only five degrees from perpendicular. Two hundred tons of ballast were placed on the *Gladiator's* port bilge keel to assist in righting her. Three thousand tons of water per hour were pumped out of the hull.

THE C-TYPE SUBMARINES

The new British submarine, *C 17*, was launched at Chatham dockyard, England, on August 13,—the first vessel of this type to be launched at a British royal dockyard. She was christened by Mrs. Giffard, wife of Vice Admiral G. A. Giffard, admiral-superintendent of the yard. After the launching the craft was towed to a dock to be finished for sea. She is one of four submarines to be built at Chatham, and has a length of 130 feet, a beam of 13 feet 6 inches, and a displacement of 313 tons when submerged. Her engines, built in the dockyards, are of 600 indicated horsepower, which are to furnish a surface speed of 13 knots per hour. Although built in a royal dockyard, her designs came from the Vickers.

Vickers, Sons & Maxim are building another submarine of entirely new design at their private shipbuilding yard at Barrow. She will be known as the *D 1*, and great secrecy has been preserved regarding her characteristics. She is much larger and longer than the *C* class, which are merely developments of the *A* and *B* classes, and will have much more powerful engines and torpedo tubes. It is understood that to the sides of this new type are attached two smaller structures for use in trimming.

DISPLACEMENT OF NEW DESTROYERS

The five new British ocean-going torpedo-boat destroyers of the so-called Tribal class,—the *Nubian*, *Viking*, *Zulu*, *Maori*, and *Crusader*,—which have been ordered built by private contract, will, it is now understood, each have a displacement of 900 tons. This is slightly in excess of that of the 33-knot ocean-going destroyers of the Tribal class now afloat, the *Saracen*, the largest of the class, having a displacement of 893 tons, and the *Afridi*, the smallest of the type, a displacement of 795 tons. The new destroyers will all be fitted with turbines and burn oil fuel.

THE DEFLECTION OF PROJECTILES

An interesting series of experiments have recently been in progress at the Whale Island Gunnery School for the purpose of ascertaining to what extent and how far projectiles are deflected from their course when they strike the water, and at what depth they become ineffectual. The battleship *Revenge*, tender to Whale Island, has been engaged in this work. A special target was prepared and towed at various ranges by the *Seahorse*, while the guns of the *Revenge* fired upon it. The target was constructed upon steel caissons, which extend a considerable distance beneath the surface of the water and on which the effect of the various shots was recorded. These experiments are regarded as extremely important, as they involve the problem of the depth of battleship armor below the water.

THE INVINCIBLE NEARING COMPLETION

The battleship cruiser *Invincible*—sister to the *Indomitable* and *Inflexible*—is nearing completion and will soon be commissioned. She left the Elswick yard of Sir W. G. Armstrong, Whitworth & Company, the first week in September and proceeded down the Tyne to Pelaw, where she was to receive the final touches before going to sea for her preliminary steam trials. The new cruiser is 530 feet long, 78½ feet beam, and her displacement is 17,250 tons. With turbines of 40,000 indicated horsepower, it is anticipated that her speed will equal that of the *Indomitable*, which recently established such a splendid record during her homeward voyage to England from Quebec. The *Invincible* belongs to the 1905-06 naval program; was laid down April 2, 1906, launched in April, 1907, and was due for commissioning last April.

ACCIDENTS IN THE BRITISH NAVY

A Parliamentary Return, showing the number of ships and other vessels of war which have been in accidents since January 1, 1901, with other information of a like nature, has been issued, in response to a demand for data along this line as a result of the recent accidents to the *Gladiator*, *Berwick*, *Tiger*, *Gala*, and other naval vessels. It stated that during the period from January 1, 1901, to May 27, 1908, the number of accidents was 442. The number of British ships and other craft of war which have been totally lost during that period has been 16, including the loss of the *Forté*, a coal depot barge. The return excludes the loss of the picket boat of the *Edgar*, the steamboat and pulling cutter of the *Vernon*, the gig of the *Defiance*, a submarine mining vessel, and the steam cutter *No. 219*. The original cost of the ships and other

craft lost, including guns and naval stores, was £1,951,974, or nearly \$9,000,000. The number of vessels which have been in accidents and which have been repaired in royal dockyards was 218, and in private yards, 10. The number of lives lost as a result of these accidents was 408. The annual amount of pensions and the aggregate amount of gratuities awarded to dependents upon those who lost their lives was £5,882, or nearly \$30,000.

GERMANY

SUBMARINE U 2 IN COMMISSION

The new German submarine, *U 2*, which was recently launched from the Krupp Germania shipbuilding yard at Kiel, has been placed in commission and has been carrying out a series of trial and experimental runs in the neighborhood of Danzig. These trials will be completed before the new German submarines are put in hand by the builders, and it is expected to use the resultant data in working out the newer designs. The Germans are going in rather strongly for submarines of rather large displacement, and the earlier boats are smaller and experimental. The *U 2* displaces about 300 tons, or about 60 tons more than her predecessor, the *U 1*, which displaces 240 tons. The second of these, now undergoing trials, is regarded as having even better seagoing qualities than the first. The *U 1* was built at the Krupp yard at Kiel in 1906, and is driven by twin screws, with a surface speed of about 11 knots, and a submerged speed of 9 knots, and carries one torpedo tube. The *U 2* is the result of the successful trials carried out with the *U 1*, which in 1907 made the voyage from Heligoland to Kiel, round the Skag, a distance of 600 nautical miles, under her own power. She was propelled by two petrol motors of 225 horsepower, and her passage was made in rough weather and with the original supply of fuel. Up to that time the longest distance covered under similar conditions was about 300 miles, by a French submarine. As a result of this voyage, the German Government gave immediate orders for the laying down of the *U 2*.

GERMANY'S NEW SUBMARINE SALVAGE VESSEL

Some months ago we mentioned the fact that Germany had built a submarine salvage vessel at the Howaldt yard at Kiel, according to a special patent. This craft is now in service and has been used during the trials of the new submarine, *U 2*, near Danzig, a torpedo boat accompany-

ing the submarine and this specially constructed seagoing dock. This salvage vessel consists of two parallel hulls, rigidly constructed and so equipped as to be able to raise a submarine boat in distress as well as to serve as its dock. The submarine is raised by means of strong cranes arranged over the middle of the two hulls, capable of lifting 500 tons, and suspended in the space between the hulls. The salvage vessel is fitted with both primary steam machinery and electro motors, which provide a constant reserve of electrical power for the use of the submarines under its care. It has a speed of 11 or 12 knots an hour, and is, therefore, capable of accompanying the submarines which it is designed to tend.

SEAGOING FOR THE FLEET

The German Admiralty has this year had the German High Sea Fleet undertake its annual maneuvers in the Atlantic Ocean at a greater distance from German home ports than usual. The fleet was distributed into four divisions, of from four to six vessels each, and their maneuvers were brought to an end about the middle of August. An idea of the territory covered in the voyage may be gleaned from the fact that just before the end of the exercises one division, consisting of the battleships *Deutschland*, *Hessen*, and *Pommern*, with the cruiser *Dantzig*, was at Teneriffe under command of Prince Henry of Prussia. Another division, composed of the *Preussen*, *Hannover*, *Elsass*, *Braunschweig*, *Lothringen*, and *Lubeck*, was at Las Palmas, Grand Canary. A third division, composed of the *Wittelsbach*, *Zähringen*, *Mecklenburg*, and *Wettin*, was at Ponte Delagada and St. Michael, in the Azores. The fourth division, consisting of the *Kaiser Wilhelm II*, the *Kaiser Barbarossa*, and *Kaiser Wilhelm der Grosse*, with the cruisers *Koenigsberg* and *Berlin*, was at Fayal, in the Azores. At the maneuvers in the Baltic, Germany employed submarines for the first time; of these she has only two, the *U* and *U2*. The Baltic exercises included landing operations on a large scale in the vicinity of Swinemünde.

THE GERMAN NAVY LEAGUE

One of the strongest factors in the German naval situation for some time has been the Navy League of the Empire. The differences in the League in regard to general policy and direction have been local and will not interfere with its further usefulness in the development of German sentiment in favor of a strong fighting force at sea. The journal of the German Navy League, devoted to the upbuilding of the German Navy, has a circulation of nearly two hundred and seventy-five thousand

copies. The League organizes excursions for school teachers and children to the various naval harbors and bases, and makes every effort to increase popular interest in the navy through exhibitions and lectures in the principal cities. Its activities extend toward the same end through many other channels. Like the British Navy League, the German League has a woman's branch, which is active and aggressive in its work. Thus no opportunity is lost in Germany to develop interest in the growth and welfare of the fleet, and results are not only apparent now in the strong building policy of Germany, which has attracted the attention of all of the great maritime powers, but will likewise be forthcoming in the future, since the education of children in these directions lays a sound foundation for the future interest in the German Navy.

FRANCE

EXPLOSION ON THE LATOUCHE-TRÉVILLE

An unfortunate accident, resulting in the death of thirteen men, occurred near Toulon on September 22, when one of the big turret guns on the French armored cruiser *Latouche-Tréville* exploded and completely wrecked the after turret of the vessel. The main armament of the cruiser consists of two 7.6-inch guns and six 5.5-inch weapons. The gun that burst was the 7.6-inch weapon in the after turret. The entire gun crew of thirteen men were killed and a number of other members of the service were seriously injured aboard the vessel.

The accident is only one of a series which have occurred recently in the gunnery drills and target work of the French fleet, and will undoubtedly result in a general investigation of the whole subject. The drill had been proceeding for some time satisfactorily, when suddenly the whole turret seemed to blow out with a terrific roar. The bodies of some of the gunners were frightfully mutilated, and several were hurled into the sea through the great gap made in the turret by the explosion. The *Latouche-Tréville* is about the oldest armored cruiser in the active service of the French fleet. She was completed in 1893, and is one of a series of three sister ships, the others being the *Chanzy* and the *Bruix*, each of 4,750 tons displacement.

OTHER FRENCH GUNNERY ACCIDENTS

In many respects the explosion aboard the *Latouche-Tréville* is declared to have been closely similar to that which occurred aboard the Gunnery School ship *Cou-*

ronne, off Les Salins d'Hyères on August 12 last, when by the bursting of the breech of one of the guns six men were killed and eighteen injured. The accident of September 22 is especially unfortunate, and it is regrettable that it comes so close upon the heels of the report which has just been made on the accident of August 12 on the *Couronne*. It was only on September 8 that M. Thomson, French Minister of Marine, announced at a French Cabinet meeting that an investigation of the explosion aboard the French schoolship *Couronne* showed the accident to have been due to the primer being prematurely exploded. This ignited the gases remaining in the gun from the previous discharge, and the fatal explosion followed. Minister Thomson explained on that occasion that the Ministry of Marine was seeking to prevent a recurrence by improving the existing system of gun cleaning.

TARGET PRACTICE

During the recent target practice of the French fleet at Salins d'Hyères the old coast-defense vessel *Tempête* was used for target purposes, and the firing led to considerable controversy and rumor, which the correspondent of "Le Yacht" at Toulon says should be accepted with some reserve, especially since the accident to the *Couronne* had excited public opinion. In the *Patrie*, two 12-inch guns, brought back to their position for the application of the compressed-air draught on the Marbec system, could not be returned to their firing position. In the *Justice* there was a flare-back when the breech of one of the 12-inch guns was opened, owing to the Marbec apparatus working too slowly.

The old French battleship *Admiral Duperré* was used as a target for shore guns during these gunnery exercises and was so badly injured below the water line by shells from 9.4-inch guns that she sank in shallow water, but was afterwards docked for examination. During this target work the French gunners, like those of other navies, showed considerable improvement over the previous year's work. Great progress was shown in the percentage of hits. Formerly this percentage was 16. It was, according to last reports from Salins d'Hyères, 24 per cent. It was found that the 7.6-inch guns fired very rapidly for their caliber and that vessels armed with this weapon particularly distinguished themselves. This is the heaviest gun mounted on the French armored cruisers, and even the latest of this type of vessel in the French Navy mounts as their heaviest weapon, the *Waldeck-Rousseau* having fourteen such guns. Only four French battleships have this diameter of bore, the four 14,865-

ton battleships, *Patrie*, *République*, *Liberté*, and *Vérité*, each of which has four 12-inch and ten 7.6-inch guns in their main batteries.

THE NEW FRENCH SCHOOL OF GUNNERY

In connection with the recent gunnery accidents in the French Navy it is perhaps well to note the fact that the French naval authorities have been, during the past year, devoting unusual attention to gunnery matters. They have come to a realization of the importance of straight shooting and hard hitting, as well as hitting your antagonist as often as you can in battle. The development of American and British gunnery as a result of the annual spring and fall target practice has influenced the French naval authorities, and only recently M. Thomson, French Minister of Marine, approved the report of a committee which had been entrusted with the investigation of a gunnery system to be adopted in connection with the establishment of a French school of naval gunnery. Under this scheme a central establishment was installed in the French transport *Gironde*, which was chosen to serve as a barrack with tenders. The *Gironde* was fitted with guns and apparatus for preparatory work, although not for use in actual gunnery practice. Two vessels, the *Latouche-Tréville* and the *Descartes*, were selected for attachment to the *Gironde* as gunnery tenders. The *Charles Martel* or the *Masséna*, according to the new scheme, were chosen to serve as tenders for the higher gunnery practice of the fleet; and the plan involved the sending of one of these latter ships to Salins d'Hyères during the period of instruction of young gunlayers. The authorities at Toulon and Captain Darrieus, commander of the *Couronne*, worked out a program in much detail for this gunnery practice, and it was while this program was being executed that the *Couronne* accident occurred last month. The *Latouche-Tréville* was also probably engaged in the carrying out of this same general plan this month when her turret explosion occurred.

TRIALS OF THE ERNEST RENAN

The French armored cruiser *Ernest Renan*, 13,644 tons displacement, launched at St. Nazaire in April, 1906, has just carried out her full-power steam trials at Toulon. The contract provided for the development of 36,000 indicated horsepower and a speed of 23 knots. The results of the trial were exceedingly satisfactory. The figures show that she developed 37,700 indicated horsepower with a corresponding speed of 24.24 knots. It is claimed that this record is without parallel for a ship of

this class — well-armored and propelled by reciprocating engines instead of turbines.

BRAZIL

TRIALS OF THE DESTROYER PARA

The *Para*, first of the ten new 700-ton torpedo-boat destroyers for the Brazilian Government, carried out her official trials in the Firth of Clyde on September 16. She maintained an average speed of 27.25 knots an hour during a continuous run of three hours, while carrying a load of one hundred tons. She will soon be ready for commissioning. While not as long as the new American destroyers of the 1908 program, which will measure 289 feet on the load water line, she has nearly two feet greater beam. The new American destroyers will have about 42 tons more displacement, normal, on trial, and are required to develop two knots better speed.

THE MINAS GERAES

The first of the new Brazilian *Dreadnoughts*, the *Minas Geraes*, about which so much has been said, has now been launched. She is a first-class battleship of 19,500 tons displacement, and being 250 tons heavier in displacement than Great Britain's *St. Vincent*, this new Brazilian ship is to-day the largest and most powerful warship that has ever been launched. This distinction she will hold until the launching of the first of the new 20,000-ton American battleships, which will displace 500 tons more, although they will mount two less big guns than the *Minas Geraes*. The launching of the *Minas Geraes* took place from the Elswick yard of Sir W. G. Armstrong, Whitworth & Company, Newcastle-on-Tyne, England, on September 10, this being also the day upon which the *St. Vincent* was launched at Portsmouth for the British Navy. The *Minas Geraes* was christened by Senhora F. Regis de Oliveira, the wife of the Brazilian Minister to Great Britain, who in that capacity represented Senhora Afonso Penna, wife of the President of Brazil. Numerous Brazilian officers composing the Commission that has been in England some months representing the Brazilian Government in the construction of all of the Brazilian battleships and torpedo-boat destroyers now building by British firms, were present at the launching ceremony, as was Sir Andrew Noble, Bart., the chairman of the Armstrong firm, who presided at the gathering held in the mold loft after the vessel slipped off her ways.

At the Franco-British Exhibition in Great Britain is a fine model of the *Minas Geraes*, worked out according to scale, and showing every essential feature of the new battleship. While there have been suggestions that these Brazilian ships may be sold to Japan or some other power, those in close touch with naval and official matters in Brazil claim that there is no danger of these vessels coming under other ownership than that of Brazil, which country is building them because she aspires for the primacy of South America, and feels that she must possess a fairly strong navy like other powers. Nothing but Brazilian officers, it is known, have been connected with the building of these vessels at the British works, and the material has all been inspected by Brazilians. The ships, although built for Brazil and watched in their construction by her officers, were designed by Mr. J. R. Perrett, the head of the Elswick shipbuilding department.

The main features of the *Minas Geraes* are 500 feet length, 83 feet beam, 25 feet draught, normal, with a corresponding displacement of 19,500 tons. The guaranteed speed is 21 knots an hour, the same as that for the new British battleships; and the bunker capacity is 2,000 tons, which is regarded as sufficient for a large radius of action at moderate speed. There are arrangements for oil fuel as well as coal. All the machinery and boilers of the vessel, the latter being in place at time of launching, were built by Vickers Sons & Maxim at their Barrow-in-Furness works. Unlike the British and some foreign *Dreadnoughts*, the *Minas Geraes* will be propelled by ordinary reciprocating engines instead of turbines. Her boilers will be of the Babcock type. Her armor, under manufacture at the Armstrong, Whitworth & Company's works at Openshaw, Manchester, is of the Krupp cemented quality, with a main water line belt of 9 inches thickness, slightly tapered fore and aft. This belt is carried to the height of the upper deck, over the citadel, to afford complete protection to the barbettes, machinery, boilers, and magazines. Her armament is exceptionally powerful, since it consists of twelve 12-inch guns, twin mounted in six barbettes. Four of these barbettes are carried on the upper deck level, one forward and one aft, and one amidships on each broadside. The feature of principal interest is the elevated position of two of the barbettes, on a higher level on the center line, so that their 12-inch guns may fire over the other two forward and aft center-line turrets. This firing of pairs of big guns over other turrets is somewhat similar to the arrangement of the American and German *Dreadnoughts*,

but contrary to the practice of the British, Japanese, and Italian navies. To afford protection to the lower guns when the upper ones are being fired, the *Minas Geraes* has special arrangements. The secondary armament of the vessel consists of twenty 4.7-inch guns, fourteen of which are carried on the main deck behind the protection of the citadel armor, and the other eight in well-protected positions at a higher level. There are also some three-pounders and smaller weapons.

JAPAN

NEW BRITISH-BUILT SUBMARINES

Unusual interest has been manifested at Liverpool in the operation of placing the two new British-built Japanese submarines on board a specially constructed steamer for transportation to Japan, the system adopted being rather novel. This steamer was built for the Japanese Government by Messrs. Vickers Sons & Maxim, Ltd., at Barrow, to carry the two new submarines together to their destination. These submarines also were built at the same works. The name of this submarine transport is the *Transporter*; she is about 225 feet long, constructed with a short forecastle and engines aft, thus having a clear hold. The vessel has a wide hatchway extending practically from the break of the forecastle to the break of the poop, which is also the forward engine-room bulkhead. The athwartships hatchway beams, of which there are necessarily a great number, to compensate for the exceptionally long deck opening, are removable, so as to admit an object almost the full length of the hold. The *Transporter* was dry-docked, the port bulwark taken down, the hatch coaming on the same side removed, and a portion of the steel deck taken up. The water was then let into the dock, totally submerging the hull, except the upper portion aft. One of the submarines was then floated into the dock, hauled into position over the hold from the port side, and the level of the water in the dock reduced by pumping. As the submarine—about 135 feet in length and of 250 to 300 tons displacement—sank into the hold with the lowering of the water in the dock and ship, it was placed in the chocks by the aid of divers, and finally secured in position on the starboard side of the hold. The operation was then repeated for the second submarine, and eventually the two submarines lay side by side in the hold of the *Transporter*. The bulwarks, decks, hatch coamings, and beams were afterward re-

placed, and the vessel returned to Barrow to complete the preparations for her voyage to the Far East.

ITALY

LAUNCHING OF ANOTHER NEW SUBMARINE

The submarine boat *Foca* was successfully launched for the Italian Navy at Spezia on September 8 in the presence of King Emmanuel of Italy. Designed by Signor Laurenti, this submarine has been built on quite original lines. It is one of seven submarines contemplated in the Italian naval program of 1905, although it is the only one actually built up to the present time. It is equipped with F.I.A.T. motors, and has large storage batteries for navigating below the surface. The total length of the vessel is 139 feet 4.5 inches, the extreme beam is 16 feet 10 inches, and the surface displacement when fully laden 180 tons. The maximum speed is 15 knots when traveling on the surface.

Italy has at present, besides the *Foca* and the old *Del-fino*, another boat being completed at Venice—the *Tri-checo*. Italy also possesses four smaller submarine boats, the *Glaucos*, *Squalo*, *Narvalo*, and *Otaria*. The excellent performances of the four latter boats, which traveled from Venice to Spezia by their own power, are directing the attention of Italian naval circles to this type of craft. The Italian Government has recently been carrying out a series of experimental maneuvers, and from authoritative sources it is learned that their performances have served still further to emphasize the advanced position taken by Italy in the direction of submarine navigation. Some very interesting figures are available respecting the *Foca* and her sisters of the Laurenti design:—

Maximum submerged speed is 9 knots an hour.
Surface radius of action at 8 knots speed, 875 nautical miles.

Submerged radius at 5 knots speed, 40 nautical miles.
Hull: designed to withstand submergence of 150 feet depth.

Total fuel capacity, 296.6 cubic feet.
Compressed air in reserve, 2,100 pounds pressure per square inch, 13,773 cubic feet.

Each pump can discharge 130 tons per hour at a depth of 130 feet.

Reserve buoyancy in light condition: 60 per cent of the displacement.

Safety droop keel weighs about 12 tons.
Explosion motors: maximum, 750 horsepower.
Electric motors: maximum, 190 horsepower.

THE NAVY LEAGUE OF THE UNITED STATES

THE NAVY, under its new management, wishes particularly to commend itself to the membership of the Navy League. The League's formal statement of its policies includes practically the whole purpose of this magazine. Nevertheless, THE NAVY is not intended to be in any sense the organ of the League. In this respect, as in others, it will preserve absolute independence. It will maintain a Navy League section, in which will appear such items as are supplied by the Secretary of the League. Chairmen and officers of League Sections and League members generally are invited to address the editor for publication on any matter which would be of particular interest to the League.

LECTURES BY REAR ADMIRAL EVANS

The Directors of the Navy League, at a meeting held in New York on October 12th, made preliminary arrangements for a lecture to be given by Rear Admiral Robley D. Evans, at Carnegie Hall, New York, January 8, 1909. Admiral Evans' subject will probably be "From Hampton Roads to San Francisco, in Command of the Atlantic Fleet." It will cover the condition of the fleet, its preparation for the long cruise, the ports at which it stopped, many incidents of interest en route, the passage through the Straits of Magellan, the review at Valparaiso, and a full discussion of the target firing at Magdalena Bay. The lecture will be given under the auspices of the League, and arrangements will be announced later whereby members of Sections of the League in New York and vicinity will be given the first opportunity to choose seats.

The Directors intend to make this a notable event in the history of the League.

This is the first public announcement of the proposed lecture, but the demand for seats through private channels is already large, although it is intended to withhold all assignment until members of the League have had a fair opportunity to secure places. In connection with this lecture, which is the first of a series that Admiral Evans will give during the winter, the League will tender him various courtesies in New York. A committee of men prominent in New York State and the city will be present on the platform with him.

It is believed that the series of lectures by Admiral Evans will afford an opportunity for Sections of the League to stimulate interest in their several localities. Sections wishing to take this matter up should communicate with the "J. R. Pond Lyceum Bureau," Metropolitan Life Insurance Building, New York City.

Other lectures that Admiral Evans proposes to give are: "Naval Campaigning in the West Indies: Spanish War"; "A Summer Among the Seals and Sealers, 1892"; "A Cruise in the East: Before and During the First Months of War Between Japan and Russia."

The following are interested in forming new Sections of the League:—

H. M. Batchelder, Salem, Mass.
Commander John A. Bell, U.S.N., New York City.
Henry J. Bowdoin, Baltimore, Maryland.
Judge Robert J. Grier, Monmouth, Illinois.
Hon. James H. Higgins, Pawtucket, R.I.
Alex. London, Birmingham, Alabama.
R. S. Reinhardt, Lincolnton, N.C.

ADMIRAL DU PONT SECTION

"The Admiral du Pont Section" has recently been organized at Wilmington, Delaware. Mr. John S. Rossell, who undertook the organization of this Section, has been elected Chairman; Francis I. du Pont, Vice-Chairman; John J. Raskob, Treasurer; and George H. McGovern, Secretary. The list of members will be given in the October issue of THE NAVY.

NICHOLAS BIDDLE SECTION

At a meeting of the Nicholas Biddle Section of the Navy League, held at the Union League, Philadelphia, September 15, Mr. Graham Shaw resigned his position as Secretary and Treasurer of the Section. Mr. Charles O. Bond, 22d and Filbert streets, Philadelphia, was appointed Secretary for Mr. Shaw's unexpired term, and Dr. John Welsh Croskey was appointed Treasurer. The Section voted a donation of \$25.00 to the Philadelphia branch of the Naval Young Men's Christian Association.

Preliminary plans were made for the Section's dinner, to be held some time in January.

THE OREGON SECTION

Through the efforts of Mr. John McNulty, "The Oregon Section" has been recently organized at Portland, Oregon, with the following officers and members: Harry M. Montgomery, Chairman; Henry F. Connors, Vice-Chairman; R. B. Wilcox, Treasurer; and John McNulty, Secretary. Members elected: H. L. Hawthorne, A. J. Valtine, H. W. Hogue, E. C. Roesser, Edward J. Failing, A. E. Clark, David W. Hazen, Van W. Anderson, David M. Dunne, George S. Sheperd, R. B. McConnell, and Samuel F. Owen.

VESSELS OF THE NAVY IN COMMISSION

WHERE STATIONED OCTOBER 20, 1908

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Alabama	Navy Yard, New York	Molokai†	Olongapo, P. I.
Albany†	Mare Island, Cal.	Monadnock†	Olongapo, P. I.
Alexander†	Manila, P. I.	Montana*	Norfolk, Va.
Alliance*	Culebra, West Indies	Monterey†	Olongapo, P. I.
Annapolis†	Tutula, Samoa	Montgomery	Newport, R. I.
Archua†	Magdalena Bay, Lower California	Morris	Newport, R. I.
Arkansas	Norfolk, Va.	Nanshaof	Manila, P. I.
Atlanta	Norfolk, Va.	Nebraska*	Yokohama, Japan
Bagley	Annapolis, Md.	Nero*	Boston, Mass.
Bainbridge†	Cavite, P. I.	Nevada	Norfolk, Va.
Barney*	Tangier Sound, Chesapeake Bay	Newark*	Guantanamo Bay, Cuba
Birmingham†	Boston, Mass.	New Hampshire*	Navy Yard, New York
Brutus	Norfolk, Va. (In reserve)	New Jersey*	Yokohama, Japan
Buffalo†	San Francisco, Cal.	Nina*	Annapolis, Md.
Cesar*	Manila, P. I.	North Carolina*	Norfolk, Va.
Californian†	Honolulu, Hawaii	Octopus*	Philadelphia, Pa.
Callao†	Hongkong, China	Ohio*	Yokohama, Japan
Castine*	R. I.	Olympia†	Annapolis, Md. (In reserve)
Charleston†	Bremerton, Wash.	Oscola	Key West, Fla.
Chattanooga†	Manila, P. I.	Paducah*	Portsmouth, N. H.
Chauncey†	Cavite, P. I.	Panther*	Hongkong, China
Chester†	Bradford, R. I.	Pennsylvania†	Honolulu, Hawaii
Chicago	Annapolis, Md. (In reserve)	Pennsylvania	Training Station, San Francisco, Cal.
Cleveland†	Manila, P. I.	Peoria*	San Juan, Porto Rico
Colorado†	Honolulu, Hawaii	Perry†	Honolulu, Hawaii
Concord†	Manila, P. I.	Philadelphia	Bremerton, Wash.
Connecticut*	Yokohama, Japan	Pike	Mare Island, Cal.
Constellation	Newport, R. I.	Piscataqua†	Olongapo, P. I.
Congo†	Manila, P. I.	Pompey†	Manila, P. I.
Cuttlefish*	Philadelphia, Pa.	Potomac*	Guantanamo Bay, Cuba
Dale†	Cavite, P. I.	Prairie*	Tangier Sound, Chesapeake Bay
Davist	San Diego, Cal.	Preble†	Honolulu, Hawaii
Decatur†	Cavite, P. I.	Rainbow†	Manila, P. I.
DeLong†	Tangier Sound, Chesapeake Bay	Rangers	Villefrance, France
Denver†	Manila, P. I.	Relief†	Manila, P. I.
Des Moines*	Kingston, Jamaica	Rhode Island*	Yokohama, Japan
Dolphin*	New York City	Rowan†	San Diego, Cal.
Dubuque*	New York Navy Yard	Salem*	En route from Boston for New York
Eagle†	Portsmouth, N. H.	Samart†	Canton, China
Farragut†	San Diego, Cal.	Saturn†	En route from Honolulu to San Diego
Fortune	Mare Island, Cal.	Scorpion*	Philadelphia, Pa.
Fox†	San Diego, Cal.	Severn	Annapolis, Md.
Franklin†	Norfolk, Va.	Solace†	Honolulu, Hawaii
Galveston†	Manila, P. I.	South Dakota†	Honolulu, Hawaii
Georgia†	Yokohama, Japan	Southern	Portsmouth, N. H.
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Goldsbrough†	San Diego, Cal.	Stewart†	Honolulu, Hawaii
Grampus	Mare Island, Cal.	St. Louis	Bremerton, Wash.
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Helena†	Manila, P. I.	Tarantula	Philadelphia, Pa.
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Hopkins†	Honolulu, Hawaii	Texas	Charleston, S. C.
Hull†	Honolulu, Hawaii	Thosom†	Annapolis, Md.
Idaho†	San Diego, Cal.	Tingey*	Tangier Sound, Chesapeake Bay
Illinois†	Yokohama, Japan	Truxtun†	Honolulu, Hawaii
Independence	Mare Island, Cal.	Uncas*	Navy Yard, New York
Indiana	Philadelphia, Pa. (In reserve)	Vermont†	Yokohama, Japan
Iris†	Olongapo, P. I.	Villaboos†	Hongkong, China
Iroquois†	Honolulu, Hawaii	Viper†	Philadelphia, Pa.
Justin†	San Diego, Cal.	Virginia*	Yokohama, Japan
Kansas*	Yokohama, Japan	Wabash	Boston, Mass.
Kearsarge*	Yokohama, Japan	Washington†	Honolulu, Hawaii
Kentucky*	Yokohama, Japan	West Virginia†	Honolulu, Hawaii
Lancaster	Philadelphia, Pa.	Whipple†	Honolulu, Hawaii
Lawrence†	Mare Island, Cal.	Winnington†	Manila, P. I.
Lebanon*	Boston, Mass.	Wisconsin*	Yokohama, Japan
Louisiana†	Yokohama, Japan	Wolverine	Erie, Pa.
Maine†	Portsmouth, N. H.	Wompatuck†	Olongapo, P. I.
Manly	Annapolis, Md.	Wyoming†	Mare Island, Cal.
Marietta†	Portsmouth, N. H.	Yankes	Guantanamo Bay
Maryland†	Navy Yard, New York	Yankton†	Yokohama, Japan
Mayflower*	Bremerton, Wash.	Yorktown†	Mare Island, Cal.
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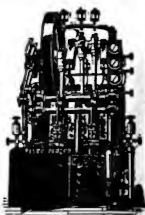
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WHERE THE RESPONSIBILITY LIES

EDITORIAL

**REAR ADMIRAL PILLSBURY'S RECOMMEN-
DATIONS**

THE NAVAL ACADEMY FOOTBALL TEAM

BATTLE TARGET PRACTICE

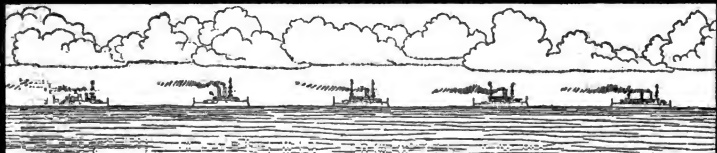
FRENCH GUNNERY ACCIDENTS

SERVICE ITEMS

FOREIGN NAVIES

FOREIGN NAVAL CORRESPONDENCE

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THE NAVY

Vol. II

WASHINGTON, D.C., OCTOBER, 1908

No. 9

NOTE AND COMMENT

UNDER the instructions of the Acting Secretary of the Navy, the General Board is preparing a summary of the results of the Newport Conference. This will be given general publicity and will be distributed in the service. The summary will include only so much of the report as relates to existing vessels, it being contrary to national policy to make public the conclusions in so far as they relate to future design.

REAR ADMIRAL WILLIAM J. BARNETTE, Superintendent of the United States Naval Observatory, has recently issued an order by which the administration of its scientific and astronomical work has been placed under a Board of Observatory Control. The position of astronomical director has been abolished and a general change in organization effected. The newly created astronomical council established by the order is to consist of the superintendent, assistant superintendent, certain assistants in charge of astronomical divisions, and the director of the Nautical Almanac. This council is to be guided by the idea that the most important duty of the Observatory is the publication of the Nautical Almanac, which must be kept up to the highest possible standard of accuracy, and to that end suitable continuous fundamental observations upon the sun, moon, stars, and planets are to be considered as absolutely necessary and as constituting the astronomical essentials. The position of astronomical director, now abolished, was created in 1894.

It is worth while for our readers to know — what some of them may not know — that the *Yankee*, which recently grounded near Ilen and Chickens Light Vessel, is not a regular man-of-war. She is one of the merchant vessels bought for the Spanish War and converted for naval use. She cost the Government less than half a million dollars when bought in 1898. Having done ten years of

useful service since then, and having been launched in 1892, she would be now, if still in the merchant service, approaching Lloyd's age limit for first-class classification.

UNOFFICIAL reports from Newport indicate a successful trial of the device for torpedoes invented by Lieutenant-Commander Cleland Davis, U.S.N. The apparatus is in effect a gun and projectile combined with the automatic torpedo. The projectile, by means of a percussion fuse, is depended upon to make a breach in a torpedo net or other device used for protection against torpedoes, allowing the torpedo to pass on to the ship and explode in the usual fashion.

PROPOSALS for constructing the eight submarines which were authorized at the last session of Congress and for which \$3,500,000 was appropriated, were opened at the Navy Department, on November 2. The bidders were the Electric Boat Co., of New York (The Holland System), the Lake Submarine Boat Co., of New York, and the American Laurenti Co., of Philadelphia.

The Electric Boat Co. submitted a bid of \$433,000 for one boat from 430 to 435 tons, to be built in twenty-two months; \$428,000 each for two similar boats; \$420,000 each for three; and \$418,000 each for four or more, if built on the Atlantic Coast. For the same vessels to be built on the Pacific Coast, their bid was \$450,000 each for four or more.

The Electric Boat Co. submitted an alternative bid for submarines of 340 to 375 tons displacement at \$375,000 each for four or more on the Atlantic Coast and \$403,000 for four or more on the Pacific Coast. They also submitted a third proposition, to build submarines of the same displacement as in the proposal first above mentioned, but of a different design, for \$414,000 each on the Atlantic Coast, or \$446,000 each on the Pacific Coast.

The Lake Torpedo Boat Co. submitted bids as follows: One submarine of 518 tons, \$460,000; four or more, \$435,000 each. One submarine of 410 tons, \$410,000; four or more, \$382,500 each.

The American Laurenti Co. submitted a bid for one or two submarines of 532 tons displacement each, for \$437,500 each.

Without close inspection of the details of these bids, it is difficult to determine just which is the lowest or the most advantageous for the Department. The coming of the American Laurenti Co. into the field is of most conspicuous interest. In case they are awarded the contract, they propose to build the vessels at the yards of the William Cramp Shipbuilding Co. at Philadelphia. They represent the owners and promoters of the Italian system of submarine construction which has been most successful in the Italian Navy and which is reported to have established records of great efficiency.

THE Third Torpedo Flotilla (the *Stringham*, *Barney*, *DeLong*, *Thornton*, and *Tingey*), the First Submarine

Torpedo and Submarine Practice

Flotilla (made up of the tender *Nina* and the submarine *Plunger*), and the Second Submarine Flotilla (the submarines *Cuttlefish*, *Octopus*, *Tarantula*, and *Viper*, tended by their parent vessel, the *Hist*), were ordered from Philadelphia to Chesapeake Bay for target practice and exercises, to be supplemental to the remarkable series of tests and maneuvers that these vessels have been engaged in all summer along the New England coast. Upon the completion of target practice, the *Stringham* is to go out of commission at Norfolk and her place in the flotilla will be taken by the *Macdonough*, which has been ordered detached from the Reserve Torpedo Flotilla at Norfolk and placed in full commission. The *Prairie* arrived at Lambert's Point, near Norfolk, from Colon on October 9, and was ordered to Tangier Sound, in the Chesapeake Bay, for target practice and to act temporarily as parent ship for the torpedo vessels on the Atlantic Coast during the absence of the *Yankee*. With Newport as their base, these submarines and the torpedo flotilla, under Commander Charles C. Marsh, have been carrying out in the vicinity of Buzzards Bay one of the most interesting series of tests ever carried out by the mosquito fleet in our navy. The character, value, and significance of these evolutions and experiments were anticipated in the article on "The Evolution of the Mosquito Fleet," in THE NAVY for December, 1907, and

will be described in detail in future issues, when the work directed by Commander Marsh may be studied in perspective.

The torpedo flotilla went from Newport to New York at the end of September, and then to Philadelphia for the Founder's Week celebration early in October. The submarines, leaving Newport on October 3, passed over the same course, reaching the New York yard two days later, and, leaving there October 7 for the League Island Navy Yard, arrived at the latter place, under convoy of the *Scorpion*, the evening of October 9. It was the first durability test for submarines undertaken in the American Navy, the four under-water craft covering more than three hundred miles in their sea voyage from the New York to the League Island yard. From the latter yard they are to have a second durability test in formation by sea to the mouth of Chesapeake Bay, and later they will make the run of some four hundred miles from the Norfolk yard to the new navy yard at Charleston, which is just going into commission and is to be used as the winter working base of the Third Torpedo Flotilla and the submarines. Officers and men, whose services are in all instances voluntary aboard these tiny craft, spent four hazardous days at sea during their voyage from Sandy Hook to the Capes of the Delaware. Immediately after leaving Sandy Hook they were caught in a storm. The submarines left Newport September 20 under the escort of the *Yankee* for maneuvers and a sham battle, but the latter vessel went aground, and on the part of the voyage from New York to Philadelphia the gunboat *Scorpion* was their only convoy.

Altogether these summer and fall maneuvers have been extremely valuable and many important lessons have been learned in the handling of the boats. The whole object of the evolutions is to train the submarines and torpedo craft so that they may act together under the guidance of parent vessels, with as close an approximation to actual war conditions as is possible during time of peace.

ARTILLERY officers of the army are encouraging a healthy rivalry between the crack shots of the Coast Artillery Corps and those of the United States Navy.

Target Practice Rivalry between Army and Navy This rivalry has been growing ever since the new systems of target practice were inaugurated in both branches of the service, and while the shooting is under different conditions,—the gun-pointers of the navy firing from moving gun platforms aboard ships under way, the

artillerymen from stationary gun platforms at moving targets,—encouraging results have been obtained in both branches of the service. In our issue of November, 1907, we gave a diagrammatic comparison of navy and coast defense long-range target shooting, showing the mean results of record target practice of the coast artillery for the years 1904-05, 1905-06, and 1906-07, compared with the results of the first long-range battle target practice of ships of the navy during September and October, 1907, at Cape Cod Bay. The target used by the navy was a canvas screen 30 feet high by 60 feet long. The coast defense batteries did not use a material target; for their practice every shot was counted if it passed through a vertical area 435 feet long by 30 feet high. The coast defense target was therefore seven times as wide as the navy target; and as American naval gunners last year experienced more trouble with lateral variation of shots than from vertical errors of shooting, the record at Cape Cod Bay would have been even better if their naval targets had been seven times wider. At Cape Cod Bay in the autumn of 1907, at ranges of from 5000 to 9000 yards (according to the power of the guns), the average percentage of hits for twelve battleships was 30.7 for the 12-inch and 13-inch guns, 27 per cent for the 8-inch guns, and 16 per cent for the 5-inch, 6-inch, and 7-inch guns; while the average for the highest nine battleships scoring was 25 to 67 per cent for the 12-inch and 13-inch guns, 27 to 57 per cent for the 8-inch guns, and 33 per cent and less for the smaller caliber guns. The mean results of record target practice of the coast artillery for the practice year 1904-05 was 21 per cent of hits for the 8-inch, 10-inch, and 12-inch guns, at 8000 yards' range; 25 per cent of hits at 7400 yards for the practice year 1905-06, and 35.5 per cent of hits at 6900 yards for the practice year 1906-07, for the same caliber of guns; but it will be observed that this growth in the percentage of hits made by the coast artillery was accompanied by a corresponding decrease in the range at which their shots were fired.

Since the publication of those figures, a number of striking instances of the fast scoring of big guns in target work have been recorded. One of the best of these was the remarkable score made by the crew of the 8-inch after turret of the armored cruiser *Pennsylvania* during target practice at Magdalena Bay, January 21, 1908. These guns, at 1600 yards, on that occasion made 25 hits with 25 shots in 4 minutes and 28 seconds—a remarkable record for rapidity for such large calibers. The officer in command of the turret on that occasion was Ensign

John N. Ferguson, afterwards transferred to the *New Hampshire*. Another remarkable record was made at Magdalena Bay last spring by the cruiser *Albany*, winner of the cruiser trophy, for the highest target practice record ever made by a vessel of the United States Navy. With a target measuring 12 by 21 feet at a distance of 1600 yards, the cruiser, steaming ten knots an hour, scored 65 out of the first 66 shots fired. This was done with 5-inch guns. The shots were fired in sets of six, the fastest six being made in 25 seconds and the slowest in 30 seconds. In the record firing of Sir Percy Scott's flagship, the *Good Hope*, in the British Navy early last summer, in the gunlayers' test, there was also some particularly brilliant work. Up to that time some forty British ships had fired, and the best ship, until the *Good Hope* made her record, was the *Dreadnought*. The target at which the *Good Hope* fired measured 8 by 10 feet; with the ship moving at a speed of 12 knots, Marine Artilleryman E. H. Brown, on unstable platform, made ten hits per minute with a 100-pound projectile.

Some excellent records have been made by the Coast Artillery of the United States Army since the first of the year. The 71st Company of Coast Artillery, during target practice at Fort Casey, Washington, on June 24, 1908, made 100 per cent of hits, firing at a 30-foot by 60-foot target which was moving at the rate of 7.6 miles per hour, at a mean range of 5492 yards. This practice was held with 10-inch rifles on disappearing gun carriages, at Battery Worth, Fort Casey, and the series of six shots was fired in a little over 5½ minutes. This was the second practice since January 1 in which the 71st Company made 100 per cent of hits. Captain Granville Sevier, Coast Artillery Corps, was in command of the 71st Company at this practice, and both officers and men of the company were specially commended by the Chief of Artillery for their work. This record has now been excelled by the 44th and 143d Companies of Coast Artillery from Fort Washington, Maryland, who on September 18, 1908, at their fire-command practice at Fort Monroe, Virginia, made 7 hits out of 8 shots, fired at two targets on one tow line moving at the rate of about 5 miles per hour at ranges between 6200 and 6600 yards. The total time for each series of four shots from each battery firing was about three minutes. One of the targets was an imaginary rectangle measuring 30 by 60 feet, and the other was a material target of the same dimensions. Of the four shots fired at the material target, three actually pierced the target. This is the best report of fire-command practice that has been received

by the Chief of Artillery. The 44th Company made 100 per cent of hits, and the 143d Company made 75 per cent of hits. Colonel William H. Coffin was in command of the 44th and 143d Companies, in the capacity of Fire Commander, for this practice. Captain George F. Connolly commanded the 44th Company, and Captain John L. Roberts commanded the 143d Company. The Chief of Artillery has recommended that all the officers and men connected with this fire-command practice be commended for the excellence of the practice.

As soon as the plans passed upon by the officers attending the Newport Conference came back to Washington with the approval of President Roosevelt, the Department was in a position to go ahead with the preliminaries to the keel laying of the *Florida*. Even before the Newport Conference was held, arrangements were made to lengthen and widen the slip at the New York Navy Yard, and this work has been substantially finished. During September a large force of workmen were engaged in driving piles and otherwise preparing the ways to receive the hull of this ship. The slip has been materially widened and has been lengthened toward the south. The bow of the *Florida* will extend over the lengthened portion of the slip and rest between the walls of two of the shops of the yard. The framework upon which the vessel will rest is being made very strong, in order to support the great weight that is to rest upon the keel blocks and piling,—which is to support in the building of the *Florida* four thousand tons more weight than it did in the case of the *Connecticut*. About sixty days were required for the preparation of the slip, which is now ready for the first sections of the keel plate. Orders for the plates and other material entering the hull of the ship have now been given. Bids for this material were opened by the Bureau of Construction and Repair on September 22 for 8907 tons of steel plates and "shapes," castings, and rivets for the *Florida's* hull.

Just a glance at the specifications for this material for the hull of the *Florida* is sufficient to indicate, even to the layman in naval affairs, the vast amount of material that enters the making of a battleship of 20,000 tons displacement. All of the 8907 tons of material are for the hull alone. It does not include armor or armament, boilers, engines, or machinery, equipment, or the thousand and

one other things which are combined in the make-up of a modern first-class fighting ship. The material comprised in the contracts just let for the *Florida* is equal to all of the material from keel to fighting top in ships of the *Brooklyn* class, and weighs more than twice the displacement of the second-class cruiser *Baltimore*. The *Florida* contracts call for 480 tons of rivets, ranging in size from three-eighths of an inch to one and a quarter inches in diameter: for 300 tons of steel castings, ranging in weight from 2 tons to 16 tons each; for 5370 tons of steel plating; and for 2757 tons of "shapes," "angles," and "channels."

There is food for reflection in such lessons as may be learned from the partial data already available concerning the frightful accident which occurred near Toulon on September 22 last, when the large 7.6-inch gun within the after turret of the French armored cruiser *Latouche-Tréville* exploded. Thirteen men were killed and the turret completely wrecked, the only survivor being the officer of the gun crew, who owes his life to the fact that he was not within the death-trap when the explosion occurred. There have been a number of gunnery accidents in the American Navy within the past few years, but fortunately there has been none since the *Georgia* flare-back in the summer of 1907, when a special board was appointed to study the whole subject of gunnery accidents. Since then even greater precautions than formerly have been taken in our navy; and, in order to minimize the chance for flare-backs of ignited gas from the gun tubes, orders were given for the installation of an improved form of gas ejector, involving the use of water-nozzles as well as compressed air streams. The Japanese, American, and French navies have suffered most from gunnery accidents during the past half decade; but the American accidents, while serious, have not been nearly as costly in life and ships as the explosions in the French and Japanese navies. In the three navies the conditions are different. Although the British, like the French and the Japanese, use cordite, which is not used in the American Navy, yet the British Navy has been singularly free from explosions such as have been experienced in both the French and Japanese services.

Undoubtedly a great deal of the blame for the trouble in the French Navy must be attributed to the vagaries of the much-condemned "B" explosive that the French have been using, which caused the blowing up of the battleship

Jéna off the port of Toulon some months ago, damaging the vessel so badly that she had to be struck from the navy list and is now being fitted up for use as a target. In some respects the *Latouche-Tréville* accident was rather similar to the one which occurred on August 12 aboard the gunnery school-ship *Couronne*, when through the bursting of the breech of her gun a number of lives were lost. It is also a strange coincidence that the men who were receiving this gunnery training had been transferred from the *Couronne* to the *Latouche-Tréville* just prior to the occurrence of the accident of September 22 aboard the latter vessel. It has been suggested in some circles that the accident may have been due to the faulty handling of the gun. The chief difficulty encountered in the investigation of the *Georgia* accident was the fact that the members of the gun crew who were in position to tell the most about what actually occurred in the turret were killed in the explosion. The French investigating authorities experienced the same difficulty, because every man within the turret was killed, and the surviving officer of the gun crew did not see what occurred. The gun had been fired a great number of times by its gun crew, and this crew was being relieved by another when death overtook all the thirteen men constituting two sets of gunners. Explosive of the stock of 1899 had been used by the first crew, and another charge, consisting of explosive "B" of the stock of 1904-06 had been placed within the chamber. This explosive was wrapped within a cover and had been packed behind the shell. In the *Couronne* accident the explosion occurred when the breech was closed, but there is a strong belief that in the *Latouche-Tréville* accident the breech was open during the explosion. The relieving crew, just before the accident occurred, is said to have opened the breech to see whether the gun was loaded, before resuming the practice where the first crew had left off firing; and those who accept the theory that the explosion was due to a flare-back believe that the opening of the breech admitted air, which came into contact with the inflammable gas left within the chamber. The explosive "B" is liable to spontaneous combustion at high temperatures and also decomposes rapidly. An automatic compressed air blower of the Marbec design was attached to the gun for blowing inflammable gases out of the bore. In detail, the

Marbec type of air blast is different from the compressed air blasts used in the American Navy at the time of the *Georgia* accident, although understood to be somewhat similar in principle. When the *Georgia* accident occurred no shell had been inserted, and the generally accepted belief is that there was a flare-back of heated gas which ignited the powder charge that was about to be put in the gun. There is no doubt whatever that the shell had actually been inserted in the gun on the *Latouche-Tréville*, because when the explosion took place the shell was ejected from the bore and fell about 300 feet from the muzzle, and the breech-block itself was blown into the sea. Had the breech been closed, it is believed that the shell would have gone much farther. This sunken breech-block has been recovered by divers and examined, and is said to have been found with its fuse attached and bearing traces of percussion. In the French Navy, the powder charges are fired by percussion; the official explanation of the *Couronne* disaster is that the detonator ignited under the shock of the closing of the breech in the handling of the gun, although there is a strong belief that the character of the "B" explosive was the cause of the accident. In the British Navy there is electrical firing of guns, but the French have been slow to adopt this method, notwithstanding its success across the Channel. Still another cause of the *Latouche-Tréville* affair may have been smouldering fragments of the covering of the previous charge remaining within the powder chamber of the gun and igniting the covering of the powder charge used for the shot that was about to be fired when the change of gun crews was attempted.

It will pay the French to make a study of American and British methods of overhauling naval explosives. At the present time this overhauling is being done on rather an elaborate scale in the British Navy, under rigid instructions from the Admiralty to destroy all powder found to be defective. This policy was adopted after the report on the *Jéna* accident was made to the French Minister of Marine; for, though that tragedy occurred in another navy, the British not only deemed it necessary to take advantage of the lessons learned by ridding their magazines of defective powder, but also began installing special cooling apparatus in every magazine used for storing cordite in a British vessel.

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"ARE OUR BATTLESHIPS ALL WRONG?"

Harper's Weekly asks, in a conspicuous headline in a recent number, "Are Our Battleships All Wrong?" Our answer is, "No; far from it." The article in Harper's to which the headline refers consists mainly of extracts from the now widely known "Key letter," written by Commander A. L. Key of the navy, with the purpose of calling attention not merely to defects as compared with foreign construction, but to details which could be bettered. The Key letter, on the face of it, was intended not to commend existing excellence, but to point out weakness. Any article formed of extracts from such a letter must necessarily read as a severe criticism, unless all of the facts are known. While the Newport Conference sustained most of Key's criticisms, the following significant resolution adopted at the close must not be overlooked:—

"Passing from the consideration of specific minor defects, the Conference believes that the design of the *North Dakota* and *Delaware* is an excellent one."

The critical articles in *THE NAVY* have heretofore often been construed as written with the purpose of showing that our battleships are "all wrong." But such has not been their purpose. Let it be said, once for all, that in spite of all the criticism—some just and some unjust—which has been leveled at our ships, and sometimes at the Service itself, during the past year, and in which, so far as the ships are concerned, *THE NAVY* has had its part, the fact remains that ship for ship ours equal the best. Similar public interest and competent criticism of foreign designs would undoubtedly reveal defects of equal importance; but that should be no

excuse, now that our shortcomings are seen, for not getting rid of all of the defects and being vigilant to keep up to the highest standard.

There is one tendency which seems to come nearest to constituting a fundamental weakness of importance, and that is the apparent habit of waiting for a lead from abroad. Have we not done this in many matters of importance,—the all-big-gun ship, the turbine engine, oil fuel, and dry-dock construction, to mention but a few of the more prominent examples?

If by following this habit (or "policy," if it be such) we have avoided the mistakes of the pioneers, well and good. But this conservative, or imitative, policy will only be justified if we do avoid the mistakes, and will some day prove fatal if we have not avoided them; and is, in any case, somewhat dangerous.

WHERE THE RESPONSIBILITY LIES

The public should realize that in matters affecting the navy there is an important division of responsibility. Congress is, of course, the power and authority ultimately responsible to the people. It would not properly discharge its trust if it were to accept blindly the annual and occasional recommendations of the Department. It is its plain duty to prevent waste, extravagance, and any tendency to undue expansion recommended by over-enthusiastic departmental programs. But Congress may not lightly withhold appropriations for ships, ordnance material, dry-docks, increase of personnel, experiment, and the thousand and one necessities of a growing navy. It may not arbitrarily draw the blue pencil through an estimate merely to reduce its total in dollars; it must do this with reason, if at all. The symmetry of the whole must be preserved. It should carefully consider whether or not its full duty is done to the country when it cuts the battleship program in two and appropriates with open hand for more submarines than the Department asks for. Few will hesitate to believe that development of a navy yard recommended by the Department is urged with any other purpose than to provide the best, from every strategic and professional consideration. If such a recommendation be ignored, and a development appro-

priated for at some point not recommended by the Department, Congress should be prepared to offer technical justification of its action, and the country should demand it. The Navy Department, urgently needing a dry-dock or other establishment, is forced to accept what it can get, wherever it can get it.

The attitude of Congress toward the development of Pearl Harbor, Hawaiian Islands, offers a striking example of this endless struggle between the professional point of view and that of Congress. Some years ago this natural stronghold was acquired in the islands whose character as "Key to the Pacific" has been universally recognized. Year after year the Navy Department has urged the fortification and development of this position. Until within a short time Congress had done nothing, and only by the good fortune that recent years have brought us no serious trouble in the Pacific, have we failed to suffer for this neglect. Now, happily, this position may be strengthened within a few years to a point where it will not, as heretofore, stand simply as an invitation to attack,—a valuable but defenseless position, ready to fall into the first strong hands that claim it.

USELESS SHIPS

It used to be said that a warship's useful life was about twenty years. This may have been an overestimate. It is certain that to-day a ship has very little of usefulness left if she is over fifteen years old. When, however, a ship is permanently put out of commission or used as a target for guns or torpedoes or for other purely experimental purposes five years after completion, it would seem that the ship originally could not have been of a very useful type. The *Florida*, completed in 1903, was in the early part of 1908 used as a target for guns and torpedoes at Hampton Roads. The *Arkansas*, a sister ship, has long ceased to be considered a useful man-of-war, and last summer was used as a practice ship for the Naval Academy. The *Nevada*, of the same type though of somewhat greater horsepower, displacement, and speed, has probably seen her last useful day. The *Wyoming*, after being out of commission for some time, has been

refitted for oil-fuel experiments and as a station ship. Where did we get these four practically useless ships? Was this another egregious blunder on the part of the Navy-Department? No; most decidedly it was not. Not only was it not a blunder on the part of the Navy Department, but it throws a strong light on the causes of those defects in our naval material and organization which are frequently charged up against the Navy Department and the navy itself. It can be shown by often-repeated instances how Congress, either through failure to act on recommendations of the Department, or through carrying out but part of a program or recommendation has completely defeated the wise purposes of the Department, dangerously crippled the service, and forced wasteful expenditures upon the country, for all of which the Navy Department, as a rule, is held solely responsible. It is, however, an unusual incident that is presented by these single turreted monitors; for Congress practically forced these upon the Department, in spite of the better advice of professional opinion. Just how powerful this class of vessels is, compared with our modern ships, is roughly indicated by the two pictures on page 19, one of the *Wyoming* and one, to the same scale, of the *Delaware*.

A certain rear admiral of our navy, since deceased, of distinguished record in the Civil War, appeared before the committees on naval affairs during the session of the winter of 1898-99 and urged that Congress should appropriate for this type of vessel. The officer in question had long outlived the productive period of his life. He belonged to the times of the Civil War; and while few knew better than he how to use weapons of that time, as a designer or originator of warships for the twentieth century he was quite out of place. Moreover, he did not belong to that class of older men of Civil War experience who, keeping abreast of the times, are to be depended upon to give advice of utmost value in their own particular specialties. Congress listened to the specious arguments of this officer and appropriated for these four vessels, which originally cost the Government one million dollars apiece. When the Navy Department is judged in the light of expenditures and results, it has to pay the penalty.

HOW SECRETS GET OUT

A point on which our Navy Department is often seriously blamed both by officers of the navy and civilians interested in our naval progress is its apparent inability to keep a secret. In striking contrast to this is the apparent ability of foreign powers not only to keep a secret, but to spread so much misleading information about confidential matters that rival powers are misled and the shrewder government gains a great advantage. Outside of the Bureau of Construction of the Navy Department few will be found to question that the all-big-gun ship found its first tangible example in the British service. The British Admiralty not only kept these plans to themselves, but once the ship was laid down, hastened her to completion at a rate which put them months ahead of imitators, giving them a great potential advantage in this class of construction. Measured in money, this advantage would run into tens of millions, for each ship of this class costs ten million dollars. Measured in terms of the national welfare in case of war, the advantage might be so great as to be almost incalculable.

Is it not a pity that when this much can be done and at no cost of money, but merely at the cost of carefulness in method and good administration, we should not do it? Our German letter in this issue speaks of the devices which the German Government has adopted to protect the secrecy of the designs of their new battleships. They are said to have gone so far as to erect false superstructures for the purpose of misleading too inquisitive agents of foreign governments. A careful scrutiny of all sources of published information fails to reveal the details of these ships. It is almost literally true that our ships are known from stem to stern almost the moment they are laid down. Of course, the extreme secrecy practiced by the German Government cannot perhaps be obtained under our freer institutions. It can hardly be thought, however, that we would be less ingenious than foreign powers in devising methods of protecting our designs; the truth of the matter is, that were the Navy Department ever so ingenious it would be labor wasted.

Taking as an example along a somewhat similar line the results of the recent Newport Conference, it will be

seen that here is a matter which, resting entirely in the hands of naval officers, has been strictly withheld from the public so far as recommendations as to future designs are concerned. It is true that the Navy Department did issue a belated order directing that all the proceedings should be held in confidence. The purpose of this order was not quite clear. In fact, it seems that to some extent it was unwise. It may be said that the Newport Conference was a result in a great measure of the public agitation which has been carried on for over a year as to alleged defects in the design of our ships, and so far as those defects affected existing vessels the public had a right to know the conclusions, provided it would not be contrary to national policy to do so. It does not appear as if it would have been contrary to national policy, and therefore that much of the results of the Conference should have been published. As a matter of fact, *THE NAVY* in its August issue gave in correct and definite detail practically all of this part of the conclusions of the Conference. Since that time articles of a similar nature have appeared in other publications. What the Navy Department and officers of the navy can do in the direction of secrecy is seen, however, in the fact that not one single item has yet appeared which gives with any authority the conclusions of this Conference as to designs of future ships, and it is safe to say that none such will appear until in due course these matters get into channels of official life outside of the Navy Department. Then one may be prepared to see all of the efforts for secrecy on the part of the Navy Department thrown to the winds in a day.

Some years ago, while President McKinley was still in the White House, an important conference was held between the President, the Secretary of State, the Secretary of the Navy, the Chairman of the Senate Committee on Foreign Relations and the Chief of the Bureau of Navigation of the Navy Department. As a result of this conference, an important order of international significance and one which the interests of this Government seemed clearly to require should be kept secret for the time being, was issued. The Chief of the Bureau of Navigation carried the text of this order in his own hand to the Navy Department to be written in cipher and to be transmitted to a rear admiral commanding our forces

on a distant station. The enciphering of the message was intrusted to two subordinate commissioned officers of the Department who, with a particular clerk,—one of known integrity,—were the only persons who were ever allowed to handle messages of this sort. The message was sent in the Navy Department cipher, which then, as now, was known to be absolutely safe. Before that dispatch reached its destination and long before an acknowledgment was received, the daily papers published its purport and all but gave its text. The President, greatly chagrined, sent for the Secretary of the Navy, and directed that he should find out who in his Department had been at fault and that the guilty person should be disciplined accordingly. One of the subordinates in question, an officer who had been in the Department for some years, knowing that the leak did not exist in the Navy Department, but feeling himself almost helpless to prove it, called into his confidence a newspaper man, assigned by his paper to regular work at the Department, and who, like his associates on similar detail, enjoyed the respect of all with whom he came in contact. The newspaper man was asked to learn, for the sake of

the good name of the Navy Department, how the dispatch got out. Newspaper ethics are hardly less strict than are the ethics of the Department in matters of this sort, and it would have been a serious breach of the newspaper code for the correspondent in question to reveal the source of the information if he had been the one who got it. However, he had not been responsible for the publication of the dispatch, and in a short time learned that the Chairman of the Senate Committee on Foreign Relations had within five minutes after the breaking up of the conference at the White House announced its results on the very steps of the building as he left it. The result of this investigation was reported back to the White House on the afternoon of the day on which these events occurred. Of course, there were no further proceedings; there could be none. But if a man occupying so important a legislative position as the one in question could reveal such information touching matters in which he had such close interest, what may be expected of mere questions of design of ships and other affairs of the Navy Department when they get into the hands of our news-loving and gossip-loving petty officials?

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

GERMAN NAVAL CORRESPONDENCE

BERLIN, October 15, 1908.

The High Seas Fleet

Subsequent to the autumn maneuvers, the two battleship squadrons of the High Seas Fleet were reconstituted. In its original form the first squadron consisted of *Wittelsbach* and *Kaiser* types, while the second squadron was made up of *Deutschlands* and *Braunschweigs*. By the addition of the new battleships *Schlesien* and *Schleswig-Holstein*, the *Deutschland* type of capital ship is represented by five units, of which the *Schlesien* and *Hannover* will be in the first squadron, and the *Deutschland*, *Pommern*, and *Schleswig-Holstein* in the second. The first squadron will therefore contain two vessels of the *Deutschland* class, two of the *Kaiser* class,

and four of the *Wittelsbach* class; while the second squadron will contain three *Deutschland* and five *Braunschweig* battleships. The first squadron thus receives a considerable augmentation in fighting value, since the substitution of two *Deutschlands* for the two *Kaisers* introduces eight 11-inch guns into the armament of the squadron, which formerly had nothing larger than the 9.4-inch weapon.

Reconstruction of Battleships

As the earlier battleships are gradually replaced by more modern units, they are taken in hand at the Imperial Dockyards for very drastic reconstruction. Four battleships are now undergoing this operation, but the Imperial Admiralty maintains such an impenetrable veil of secrecy that it is quite impossible to even conjecture the actual

nature of the reconstructive process. Rumor says that the ships of the *Kaiser* and *Wittelsbach* types are all to be rearmored with two 11-inch guns apiece, in place of the present four 9.4-inch guns, and that their system of armor protection is to be radically altered. In view of the proverbial conservatism of the Admiralty, this step is causing some natural surprise, as practically every other Power has abandoned the costly and usually unprofitable reconstruction policy. There are, of course, some notable exceptions. Japan, for example, has metamorphosed the vessels she captured from Russia during the late war, in one or two cases practically replacing and improving every part of the vessels excepting the hulls.

The reappearance of the *Kaiser* battleships after emerging from dockyard hands will be awaited with interest by all classes of naval officers and experts, not one of whom, however, anticipates a noteworthy gain in fighting value as a result of the alterations made. Several cruisers of the *Hertha* class have already undergone this process, the only tangible result being a slight reduction in speed. Some of the most remarkable alterations were those made in the *Hagen* class at the beginning of the present century. These coast-defense ironclads were cut in two and lengthened by 27 feet. The increase of tonnage from 3,500 to 4,114 tons enabled the vessels to be generally improved, especially with reference to coal capacity. In these cases the experiment of reconstruction was regarded as successful, but it is a significant commentary on the work that the ironclads in question have now been practically withdrawn from active service. It is a characteristic of all German reconstructions that woodwork is, so far as possible, removed and steel substituted. As showing the lavish expenditure sometimes involved by reconstruction, it may be mentioned that the mere alterations from above-water torpedo tubes to submerged tubes in the battleship *Brandenburg* were estimated to cost \$230,000.

The Rheinland

The launching of the *Rheinland* (Ersatz Württemberg) last month raises the number of German *Dreadnoughts* which have so far taken the water to three, which will shortly be increased by the *Ersatz Baden*, whose launching is due within a few weeks. Both the *Rheinland* and the *Baden* have been seriously delayed in construction by the labor troubles in the big shipbuilding yards. In spite of persistent efforts to gain data bearing on the new 18,000-ton battleships, no certain information as to their tonnage, armament, armor protection, or anticipated speed has yet been obtained. As each vessel is launched, the German

newspapers merely record the fact in two or three lines, entirely refraining from comment or speculation. Moreover, extraordinary precautions are taken by the Imperial Marine authorities themselves to deceive watchful eyes. I am informed on excellent authority that, previous to her launching at Stettin, the *Rheinland* was fitted with temporary upper works and superstructure deliberately designed to deceive observers as to the number and position of the gun turrets comprising the main and secondary batteries. These sham erections are still in place, and will evidently remain so until the ship is near completion.

No doubt the Imperial Government has sufficient reason for taking these elaborate precautions, but they appear rather childish, nevertheless. Immediately the vessels go into commission every detail of their construction and armament will become known; indeed, I have reason to believe that such particulars have already leaked out and will find their way into the next issue of a naval annual published by an enterprising expert on this side the Atlantic. A rough outline of the most probable arrangement and strength of armament on the new German *Dreadnoughts* has already been given in the Foreign Correspondence of THE NAVY. It may be taken for granted that twelve 11-inch breech-loaders will form the main battery of each unit, with double that number of 4-inch or 6-inch rapid-firers as anti-torpedo weapons. The hoped-for speed has been semi-officially announced as 20 knots. Beyond this it is profitless to go, though I confess the mystery surrounding these German ships makes such speculation a particularly fascinating pastime. It is a comforting reflection, however, that within a few months the matter will have developed a *posse ad esse*.

The "Cresyte" Shell

Great interest has been aroused here by the reports at hand from Toulon of experiments made at the French port with the new "cresyte" shell. These experiments took place on September 25, in the presence of the Minister of War and the Minister of the Navy. Preliminary trials had previously been made, but the present ones were to decide whether the French Admiralty could see its way clear to purchasing the invention. The old armored cruiser *Amiral Duperré* was anchored out in the roadstead as a target, and, although the actual result of the shooting is as yet kept secret, it is stated on good authority that four shells were fired at a range of 6500 meters against the stern of the vessel, both to port and starboard. Hardly had the last shot been fired, when the cruiser was seen to be down by the stern, and shortly

afterwards foundered in shallow water. This result is little short of astounding, when we are told that the shells were only of 6-inch caliber, charged with 40 kilos of the deadly "cresyte." The cruiser was amply protected by armor plates 550 millimeters thick, but this did not prevent the projectiles tearing great holes in her side and hopelessly devastating the interior fittings. After the trials, an interview was granted to a newspaper representative by M. Paul Doumer, ex-President of the Chamber of Deputies and an enthusiast on all naval matters, in which he said that the experiments had given every satisfaction. He declared that the thickest armor plates cannot resist the new projectile, whose high penetrative power, coupled with the terrific potency of the explosive with which it is loaded, render it superior to the naval shells used by any other Power.

It is always as well to take sensational reports of exploits by new explosives *cum grano salis*, pending unquestionably authentic information; but in the present case there is every reason for believing that French chemists have surpassed themselves in the sphere of destructive compounds. The question of propellants, projectiles, and explosives has always been considered of vital importance by the Imperial Marine administration, and there is naturally a good deal of curiosity displayed in Berlin as to the manufacture of "cresyte." Several new projectiles are to be used in connection with the forthcoming experimental bombardment of the old battleship *Deutschland*, off Shinemünde.

The German Navy League's New Program

The new demands of the German Navy League, as enunciated at the recent meeting of the executive committee, under the Presidency of Admiral von Köster, amount to six additional giant armored cruisers, displacing at least 18,000 tons, and a further battleship of the *Nassau* class. The executive committee very ingeniously seek to prove that their excessive demands are quite in consonance with the Naval Act of 1908, as they would simply correct some slight deviations from traditional German naval policy visible in the original Act. Nevertheless, they admit that their proposed scheme of "correction" would involve an additional outlay of at least \$100,000,000, and all their fund of ingenuity will be necessary in order to convince the overburdened German taxpayer that his interests imperatively demand this huge addition to the Imperial Marine.

There is not the least room for doubt that the new Navy League program has been drawn up with the sanction of the Imperial authorities, who are probably

taking this method of feeling the national pulse, to determine whether further financial outlay on the navy will be considered favorably or otherwise. They have good reason to congratulate themselves on the result of their *ballon d'essai*. With only isolated exceptions, chiefly the avowed Radical organs, the Press has signified its approval of the program, and calls upon patriotic Fatherlanders to open wide their purses in support of the cause. But thoughtful subjects of the Kaiser everywhere deplore what they consider to be a glaring strategical error on the part of the Imperial Government. For months past the nation has been carefully prepared for the imposition of new and heavy taxes necessary to meet rapidly increasing national expenditure and an abnormal deficit in the Budget, which is arousing grave anxiety in financial circles. At the psychological moment, just previous to Herr Sydow's budget statement to the Reichstag, the Navy League has sprung its mine, and this action is calculated to cause the Financial Minister great embarrassment. Already Radical newspapers like the "Berliner Tageblatt" are asking whether the new taxes are to be raised merely with the object of satisfying the inordinate demands of the chauvinists, who are obsessed with visions of unlimited sea power. In a word, the cat has been let out of the bag just at the wrong moment, and the Government is likely to reap a goodly crop of tares where it had expected financial fruit.

In addition to disturbing public equanimity at a very awkward time, the Navy League's new program has had further widespread effects. The Bavarian members, who constantly chafe under the domination of the Prussian element and whose revolt from General Keim's rule last year threatened to cause a debacle, see in the new proposals of the executive committee the hand of the deposed firebrand, Keim, and resent them accordingly. They rightly contend that such a remarkable increase in the German naval program at this hour would create highly dangerous impressions abroad, where it would be argued that the disproportionate augmentation of Germany's navy indicated aggressive intentions. When considering this subject, it is necessary to remember that the majority of thoughtful Germans are convinced of Great Britain's intention to swoop down on the German navy immediately there is a chance of her supremacy at sea being seriously challenged. So deep-rooted is this fantastic idea that there was a general outcry in the press when the High Seas Battlefleet made its recent cruise in the Atlantic. Journals usually sober and dignified in their judgment took the Imperial Admiralty severely to task for exposing the coasts to British attack by withdrawing

every German warship of any fighting value to distant waters. A general sigh of relief went up when the fleet reanchored in Kiel harbor to find Hamburg and Bremen still intact and not laid in a heap of smoldering ruins, in spite of the massed British fleets having been engaged in maneuvers in the North Sea.

There is very little doubt that these fears are the result of an uneasy conscience, as few efforts have been made to hide the probability of Germany's strivings for power on the high seas being directed against Great Britain, even in official utterances. The preamble of the 1900 Navy Bill expressed the opinion that "the enemy's cruisers on the chief trade routes in the Skager Rak, in the English Channel, on the northern coasts of Scotland, at the entrance to the Suez Canal, and at the Cape of Good Hope could make navigation almost impossible." Great Britain, alone among the maritime Powers, could operate against commerce over this wide area, so that one must assume as correctly expressing German views the statement of Vice Admiral Valois, in a pamphlet published here some years ago, that the naval preparations of Germany were wholly and solely directed against Great Britain. There is far too strong a tendency among the young German element towards "sabre-rattling" tactics and tall talk, coupled with an astounding ignorance of other nations' fighting resources. To illustrate the latter part of this assertion, I may mention that the editor of a German technical journal some time ago asked your correspondent whether it was true that the United States had a navy. This, of course, is an exceptional instance, but it serves to show the narrow outlook of many people over here who favor the "mailed fist" policy without taking into consideration the fighting potentiality of possible opponents.

The spirit of aggression, so prevalent in Prussia, finds little favor among the more easy-going people of Bavaria, where the live-and-let-live policy flourishes. It is true

that Bavaria has never been backward in providing members or funds for the Navy League, but it has consistently deprecated the ultra-bombastic attitude towards foreign countries sedulously cultivated among League members during the fiery Keim administration. The present revival of these tactics seems likely to reopen the breach, for on Sunday last the Bavarian section held an extraordinary committee meeting, when the three Presidents announced their intention of resigning office. After a somewhat stormy meeting it was decided to ask them to reconsider their decisions; and by the influence of passionate rhetoric on the part of a few extremists, the full support of the Bavarian section was promised to the latest program of naval construction as put forward by the chief committee.

There are, however, unmistakable signs of declining interest in the Navy League and all its works. Many people consider its task to be over, since the entire German nation has been brought into line on the subject of naval expansion. Baron von Kramer-Klett, who was formerly one of the League's most enthusiastic supporters in Bavaria, has just published a remarkable communication in a prominent Munich journal. "I am of opinion," he says, "that the German Navy League for several years has certainly had no justification for its existence, and that, like so many men and institutions, it has had its day, and now ought to disappear from public activity. The German Navy League has done a gigantic work. If the erroneous idea that Germany needs no large and powerful navy has been rooted out, then the League has done that." This view is shared by a large number of people, not alone in Bavaria, but in all parts of the Empire. On the other hand, the present directors of the League evince no desire to be placed on the shelf out of reach of the limelight, in which they have basked for the past decade.

H. C. B.

BATTLE TARGET PRACTICE

Unusual interest attaches to the plans already elaborated for the annual fall battle target practice of the United States Navy, to be held during the month of November, because more stringent tests have been planned for the ships' gunners and a number of novel features have been introduced in the regulations and instructions.

Target practice is now regularly held in the American Navy twice annually. Every spring there is conducted

what is known as the gunlayer's, or gun-pointer's, test, in which the men aboard ship are tried out by preliminary training. It is then that selected men qualify for the rating of gun-pointers. The ships fire at a certain distance at canvas targets. The course and speed of the vessels is given and each gun-pointer is allowed a string of shots with which he may either fail or qualify. After the gun-pointers have been rated, announcement is made

of the standing of the various vessels and the four bronze trophies are awarded to the vessels attaining the best records respectively in the battleship, cruiser, gunboat, and torpedo classes of vessels.

Battle target practice is carried out every fall under entirely different conditions. Its whole object is to improve naval gunnery by simulating actual war conditions as nearly as it is possible to do so in times of peace. The ranges are longer, the course of the vessel is such that the range constantly varies, and the object of the battle tests is to land as many hits as possible while the vessel is steaming over the designated course. In the battle practice of the Atlantic Fleet in Cape Cod Bay, Massachusetts, between September 13 and October 15, 1907, the older ships of the *Alabama* and *Kearsarge* classes began firing at about 5000 yards (2.9 statute miles), and finished at about 7000 yards (4 miles). The *Maine* and *Virginia* classes fired at from 6300 to 7500 yards, and the *Connecticut* class at from about 7400 to 9000 yards (5.3 miles). The ships steamed past the target, opening and continuing fire for eight minutes with all guns, two minutes having previously been allowed for range finding. The target used was a rectangular piece of canvas, 30 feet high by 60 feet wide. The smaller guns, such as the 6-inch, were fired at the same range as the heavy guns, and while the results showed that the smaller weapons were of practically no use as battle weapons at such ranges, the percentages of hits made by the larger vessels were the best that have ever been attained in our Navy. All the 12-inch and 13-inch guns averaged over 30 per cent of hits. Three of the participating battleships made over 46 per cent of hits with their 12-inch and 13-inch guns, half of the twelve battleships engaged made over 30 per cent with their big guns, while the *Alabama* made 50 per cent of hits and the *Maine* 67 per cent of hits with their big guns.

The battle practice to be held next month for the year 1908 will be carried out under entirely different conditions, under new regulations, which are intended to bring the gunnery efficiency of the fleet another step nearer the practical efficiency toward which those in charge of naval gunnery have been striving ever since the close of the Spanish-American War. The target will this year be of the same height, but longer than the ones used at Cape Cod Bay last year. While the targets last year were 30 feet high by 60 feet long, the targets to be used this November will be 30 feet high by 100 feet long. Considerable difficulty was experienced last fall in keeping shots on laterally, particularly when the ranges were

between 8000 and 9000 yards, as a lateral variation of 30 feet would make a miss in the case of perfect range shot. If the target used at Cape Cod Bay had been 50 per cent wider, the scores would doubtless have been increased by 20 or 30 per cent, and a much larger percentage of hits would, of course, have been made if the ships had been firing at the broadside of an enemy's battleship. Vertical errors are the more serious of those that occur in firing beyond point-blank range. The target—the enemy's ship—has its least dimension in this direction. It is long enough to be hit by a comparatively wide shot, but is often of little height. Errors in measuring ranges and errors in estimating the fall of the shot over and short cause only vertical errors. It is difficult to measure range and to estimate fall of shot over and short, and therefore difficult to correct vertical errors. The motion of the gun is more rapid and irregular in the vertical plane and variations in powder charge effect vertical errors. For these reasons one might expect that shots not scoring would usually be either too high or too low; but at Cape Cod Bay last year the crews lost more shots on account of horizontal errors.

The decision to widen the targets to be used in this year's battle target practice will therefore be of advantage to the gunners, but it is an advantage that they would have under actual battle conditions, because the ships of the enemy would be much longer than the width of the target to be used. The latest British battleship of the *Dreadnought* type to take the water—the *St. Vincent*—is 500 feet long, or five times the width of the target to be used in our battle target practice this fall. The length of the *North Dakota* is 510 feet on the load water line, the *Connecticut* class measure 450 feet, the *Alabama* class 368 feet, while our ten armored cruisers of the *Maryland* and *Tennessee* classes measure 502 feet in length.

But it is not in the size of the target used that this year's radical departure from the battle target practice of last year and previous years is to be found. The distinctive difference is to be found in the fact that none of the ships engaged in the target work next month will be informed of their speed, course, or distance from the target until the orders are given them to begin firing. The target will be stationary. Each ship will proceed to the range with sealed instructions, which are to be opened just before the ship goes into action. There will be no opportunity for previous firing, and this will naturally add to the severity of the tests. Another innovation will be the firing of the guns while the ships are

rolling. The ranges will be from 5000 to 9000 yards, according to the power of the guns used,—the same variation of range designated for the ships at Cape Cod Bay last year. The ships will fire while steaming past the target on a course which they will not know until they get upon the range, the range will not be known in advance, and the conditions of course and range will differ in the instructions placed within sealed envelopes for each ship. Some of the ships of the Atlantic battleship fleet will fire at targets moving in tow, in addition to shooting at the stationary targets. For this part of the practice a floating target,—a structure supporting the target proper,—will be towed along at a speed varying from eight to twelve knots an hour, and the gunners will fire while both the firing ship and the target are in motion.

Through these innovations gunnery officials expect to bring about a much closer approximation to actual battle conditions, so that the gunners may become fully acquainted with them in time of peace. In the adoption of a new size of target and in requiring that some of the ships fire at a target under way, our gunnery officers are abreast of what has just been done in the British navy. Several such targets have recently been launched in the British navy and were used in the recent maneuvers. One of these large battle-practice towing targets was launched on July 17, 1908, from the shipbuilding yards of Gill and Sons at Rochester, England. It is one of the largest ever built for the British Admiralty, measuring 141 feet in length and 5 feet in breadth, and has 20 feet draught. Upon this floating structure is built a superstructure of lattice work 90 feet long by 30 feet high, forming the actual target for firing at with the big guns of the battleships. A novelty about this target is that the firm built it upside down, so that as soon as the displacement during the launching operation was sufficient, it turned turtle and came down to its designed flotation, its total weight being 170 tons. This is the second of the series of such targets that the firm has built for the British Admiralty, the first having been handed over to the Chatham Dockyard authorities on July 18 for use in the recent practice of British battleships in the North Sea.

With these innovations well worked out and the orders in the hands of the respective commanders-in-chief, the

forthcoming battle target practice will be held at about the same time in three widely separated points on the globe, so that the reverberation of American guns will be heard, figuratively speaking, around the world. The Atlantic battleship fleet under command of Rear Admiral Charles S. Sperry will have its battle target practice in Manila Bay. It is to begin for the first squadron about November 1 and must be concluded before December 1. The second squadron, under command of Rear Admiral Emory, will make a detour to Amoy after leaving Yokohama and will not return to Manila until November 7, so that its target practice will begin a week later.

The eight armored cruisers of the Pacific Fleet under command of Rear Admiral William T. Swinburne will have their target practice at Magdalena Bay, on the Mexican Coast of the peninsula of Lower California. Coaling facilities and other courtesies have been extended to the Navy Department by President Diaz of Mexico, just as was done last spring when vessels of both the Atlantic and Pacific fleets carried out gunlayer's target practice at Magdalena Bay. The first preparation for the Magdalena Bay practice was made September 25, when the tug *Active* left the Mare Island Navy yard for Magdalena Bay, with a large number of floating targets for use in the firing work. There will be also battle target practice on the Atlantic coast for such vessels as are ready to participate. The newly commissioned battleships *New Hampshire*, *Idaho*, and *Mississippi* and the new armored cruisers *Montana* and *North Carolina*, which are now under the command of Rear Admiral Conway H. Arnold on the Atlantic coast, are not to have battle target practice this fall. These ships are not yet ready for that practice and some have not yet completed their gunnery tests. During the early part of October they were ordered to Philadelphia for participation in the celebration of the 225th anniversary of the founding of that city, but they are now distributed and undergoing minor repairs at the Norfolk, Philadelphia, and New York navy-yards, and are not to rejoin the *Dolphin*, Rear Admiral Arnold's flagship, until toward the first of December. The present intention is to have these five new vessels have their first gunlayer's target practice next spring, probably at Guantanamo, where the Atlantic battleship fleet will also carry out gunlayer's target work for 1909 next spring, shortly after its return from the cruise around the world.

THE MONITOR WYOMING AND OIL FUEL

The single-turret harbor defense monitor *Wyoming*,* displacing 3225 tons, which was built at the Union Iron Works in 1901, and has been out of commission at the Mare Island Navy-Yard, California, since August 29, 1905, was again placed in commission at that yard on October 8. She has been converted into an oil burner, with a capacity of 60,816 gallons of oil fuel, in addition to a maximum bunker capacity of 129 tons of coal. The *Wyoming* is the first large vessel of the American Navy to burn oil fuel. She is a sister ship of the monitor *Florida* (now the *Tallahassee*), which was last spring used in the firing tests with gun and torpedo off Hampton Roads. While the test to which the *Wyoming* is now to be put is not as spectacular as that of the *Florida*, it is not less important in its influence upon the future design of American battleships, because the outcome may mean fitting all the larger vessels intended for the Pacific Fleet to burn oil, as oil can be obtained much easier on the Pacific Coast than good steaming coal and is much cheaper. Of course foreign experience seems to have decided already the question of oil vs. coal as fuel, but we could not wisely take so important a step without tests of our own.

After the trial trips of the *Wyoming* are completed, the monitor will be sent to Honolulu to act as a station ship. Commander John J. Knapp was on September 15 detached from duty as commander of the Light-House District at St. Louis and ordered to take command of the *Wyoming*. Lieutenant Franklin W. Osburn, Jr., has been detached from the *Milwaukee* to serve as her senior engineer officer; Lieutenant Henry T. Baker from the *North Carolina* as her executive and navigating officer; and Lieutenants John J. Hannigan and Edward E. Spafford have been assigned to duty aboard the monitor.

The *Wyoming* has been fitting out at the Mare Island yard for more than a year. Before being changed she had not sufficient space between her double bottoms to permit of storing her oil supply there, so bunkers had to be refitted as tanks and there was some doubt at first as to how much alteration this would entail. These difficulties have been overcome and the monitor is ready for her trials. One of the problems which may be solved in the *Wyoming* is whether oil can be carried under pressure,—

that is, whether it will be safe to place the oil in bunkers above the fires or whether it is necessary on the score of safety to carry the oil between the double bottoms. There are other problems also which the experiments to be conducted with the vessel may settle wholly or in part. Some of the known disadvantages to be met with in the use of liquid fuel are:—

First: The extra weight involved.

Second: The additional complexity due to the necessary pipes.

Third: The possible danger of the presence of highly inflammable fuel.

The known advantages of the use of such fuel, now quite general in the British Navy, are almost too well known to be enumerated. The use of such fuel has been under discussion in our navy for the past six or seven years, and there have been some rather good reasons for going slow in the introduction of fuel oil. It has been a problem of considerable complexity. About three years ago a boiler was rigged up in Washington and a "liquid fuel" board held exhaustive tests of California and Texas oils. Inventors and owners of oil-burners were invited to have their contrivances tested. A number of them complied with the invitation, and the results are told in a large volume, comprising the official report on the subject. It was found that there was little difference in the heat values of the different oils tried, but the refined oil proved to be less trying on the boilers than crude oil, or even than coal, and it was urged that the oil be "mildly distilled" before being used. The conclusion was reached that with the use of oil the forcing of a marine boiler could be much more readily accomplished than with the use of coal. It is questionable whether naval vessels will all be fitted to burn oil alone, because the problem of supply is also a difficult one to be overcome and there are many places where the supply is limited. The United States produces about half of the world's supply of this fuel, and foreigners who have been observing the results accomplished in the British Navy had long wondered why the chief oil-producing country in the world has not sooner concluded to burn oil fuel in some of its naval vessels.

The new torpedo boat destroyers for which contracts have just been let are to burn oil fuel exclusively, being the first vessels ordered for the American Navy in which

* By authority of the President a special order was issued September 29, 1908, directing that the name of the *Wyoming* be changed to the *Cheyenne*, on January 1, 1909.

oil fuel entirely will be used in place of coal. The completion of these vessels and the outcome of the tests with the *Wyoming* will probably lead to the establishment of oil bases at navy yards or in their immediate vicinity, on both of the main coasts of the country. This is what the British Admiralty has found it necessary to do in connection with the use of oil fuel in the British Navy. Many of the British destroyers burn oil, and the *Dreadnought*, as well as her successors of the all-big-gun battleship type burn oil as well as coal, the *Dreadnought* having accommodation for 1500 tons of this sort of fuel. In connection with the acquisition of oil-fields in Nigeria by the British Government, an extensive scheme of oil-fuel storage is to be carried out at the Portsmouth Dockyard in England, the intention of the Admiralty being to construct storage tanks, with a capacity of 20,000 tons, on the Gosport side of Portsmouth Harbor. These tanks are to be built in sections and surrounded with earthworks. It is also the intention to construct a specially designed pier, or jetty, there, alongside of which the largest warships will be able to lie, pipes being laid from the storage tank to the pier, so that oil may be pumped direct into the tanks of warships.

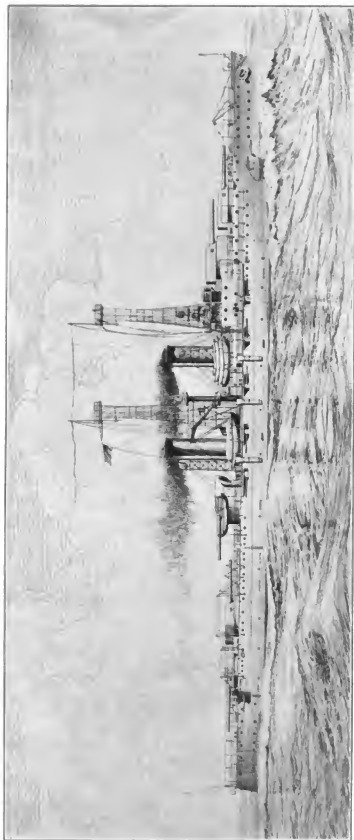
It is understood that the new American battleships of *Dreadnought* design, from the *Delaware* to the *Florida*, are to use oil-fuel as an auxiliary to coal in the same manner as the British *Dreadnoughts*. The *Delawares* will, it is understood, have a coal carrying capacity of about 2500 tons and will carry about 350 tons of oil, which is estimated as being equivalent to some 600 tons of the very best coal. This fuel will give a radius of approximately six thousand to seven thousand miles, which would mean that the ships could go under moderate speed for twenty-five days without recoaling. From now on, therefore, the fuel of the American Navy will be both coal and oil. It has now become largely a question of detail, the first preliminary stage of experiment having been ended with the re-commissioning this month of the *Wyoming* as an oil-burner. In some foreign navies it is the practice to begin with coal on forced draft, and under this method it is claimed that it is difficult to keep up steam when the fires get dirty. Oil can be sprayed on the incandescent coal and the fires kept up four or five hours longer. This will, it is understood, be the plan in the use of oil fuel by the new *Delawares*, in which oil is to be used chiefly as an emergency fuel.

On the opposite page are shown comparative views, to scale, of the *Delaware* and the *Wyoming*.

	North Dakota	Wyoming
Length on load water line.....	510 feet.....	252 feet
Extreme breadth at water line.....	85 feet 2½ in.....	50 feet
Displacement.....	20,000 tons.....	3235 tons
Mean draught.....	27 feet.....	12.5 feet
Contract speed.....	21 knots.....	11.5 knots
Armament: main battery.....	10 12-inch guns.....	2 12-inch guns
Armament: secondary battery.....	14 5-inch rapid-fire guns.....	4 4-inch rapid-fire guns
	4 3-pounder saluting guns	
	4 1-pounder semi-automatic	
	2 3-inch field pieces	
	2 machine guns, .30 calibre	
	2 submerged torpedo tubes	



U.S.S. WYOMING



U.S.S. DELAWARE



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A GROUP OF 1908 COACHES

Top row: J. Cater (Yale coach).
 Second row, from left to right: Lieut. Frank D. Berrien, U.S.N.; Midshipman D. S. Howard, U.S.N.;
 Midshipman C. Dague, U.S.N.; Professor P. J. Dashiell, U.S.N.
 Third row, from left to right: R. Page (Yale coach); Midshipman A. H. Douglas, U.S.N.

THE NAVAL ACADEMY FOOTBALL TEAM

On pages 21-23 are shown the team that played Carlisle on October 31

As this number of THE NAVY goes to press, the Naval Academy football team enters upon the month of hard work previous to the game with West Point, on November 28. Its record so far for the season has never been excelled by a Naval Academy team. It has played eight games, of which it has lost but one—that against the Carlisle Indians. It has played one tie game—that with Harvard. Including the games of October 31, the record of the principal teams stands as follows:

Annapolis, 164 to 22: eight games.
 West Point, 44 to 6: five games.
 Pennsylvania, 135 to 10: eight games.
 Yale, 132 to 0: six games.
 Harvard, 105 to 8: seven games.
 Princeton, 72 to 4: seven games.
 Carlisle, 148 to 17: eight games.
 Chicago, 108 to 12: four games.

From the foregoing it will be seen that the Naval Academy's record ranks with the best teams of the



PHOTO BY MURPHY

CAPTAIN P. W. NORTHCROFT



MIDSHIPMAN G. R. MEYER (left guard)



MIDSHIPMAN P. T. WRIGHT (right guard)



MIDSHIPMAN F. SLINGLUFF, JR. (coxswain)



MIDSHIPMAN C. H. COBB (left end)



MIDSHIPMAN REIFSNIDER (right end)



MIDSHIPMAN RICHARDSON (fullback)



MIDSHIPMAN F. T. LEIGHTON (right tackle)



MIDSHIPMAN E. C. LANGE (quarterback)



MIDSHIPMAN DALTON (left halfback)



MIDSHIPMAN JONES (right halfback)



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CAPTAIN NORTHCROFT READY TO KICK

country. The average strength of teams that it has played has been high, though it has played some comparatively weak teams. West Point has played fewer games, but the average strength of teams played has been higher than those which have met the Naval Academy. It is feared in some quarters that the Naval Academy team has already reached close to the highest possible point of excellence with the material in hand, and that there is danger of staleness overtaking the team

in the month's hard work to come. Moreover, it is realized that a month gives ample time for West Point to develop much greater strength than it has heretofore shown, and there is at this time no reason to depend upon the navy team going into the field on the 28th of November much stronger than the army team may be at the same time. However, the navy material this year is of the highest class, and the navy will go to Philadelphia prepared to back its team and expecting to see it win.

THE COLOR OF WARSHIPS

Ever since the days of the "White Squadron," white has been uniform for the hulls of our larger war vessels. It is understood that Rear Admiral William P. McCanu recommended this color, for the purpose of making the vessels more comfortable while in tropical countries, the theory being that white paint, like white clothing and other surfaces of light color, reflected more heat rays than the darker colors, and thus prevented to some extent the excessive heating of the interior of ships from the sun's rays. Latterly some doubt has been cast upon this theory. At any rate, the color originally adopted for purposes of utility became practically general in the service and was continued for many years on account of the smart appearance which the white ships presented. During the period of the Spanish War, our ships adopted the gray tints which were then becoming general in foreign navies even for peace time. White was again used when the ships were refitted after the Spanish War and has been used up to the present; but now, after careful consideration and a number of experiments, the Department has adopted slate gray as the standard color for the larger vessels, and they will be repainted as opportunity offers. It is understood that the Atlantic Fleet will finish its voyage in the traditional white of our navy.

It is not alone on account of the comparative invisibility of the gray that it is adopted as standard, for the color of the coat of paint is one of the things which might without serious menace to the efficiency of the fleet be left unchanged until war threatened; but the cost of keeping the ships white and in smart and presentable appearance is very great, and it is expected to be much less expensive to keep vessels ship-shape when painted slate gray. The change, too, will give an opportunity for further experiment, to determine just what particular shade and corresponding formula for mixing paint produces the nearest approach to invisibility under varying conditions.

Great Britain adopted a neutral gray tint in 1905. Russia, Japan, and Germany all used a similar shade; though it is noteworthy that, while the Japanese adopted this color at the outbreak of the war with Russia, the Russians kept their white paint throughout the war.

Colors for torpedo boats are usually not the same as those for the larger vessels. The conditions under which torpedo boats operate, their low free-board, and absence of superstructure seem to make a dark olive green most suitable for them.

The importance now attached to this question of painting and the scientific manner in which the question is studied offers a strange contrast to those days in which the painting of a ship was to a considerable degree a matter of the individual taste of the captain or executive officer. Long after the establishment of the "new navy," at a period just before the Spanish War, although our ships as a rule were painted white and the superstructures straw color, with more or less black at tops of smokestacks and other selected points, there was little, if any, uniformity in the shades selected. One ship would be a flat white, another a bluish or cream white, while it was not unusual to hear an executive officer express pride in the particular shade of straw color or yellow which he had had mixed for the superstructure of his ship and compare it with other ships to the detriment of the latter. Black, too, was used without a semblance of uniformity. At about that time the Navy Department established fixed formulae for the mixing of paints, thus producing uniformity of shade, and at the same time designated just what parts should be painted with each color.

One does not have to go many years back to meet an even more striking contrast to present conditions, as appears in an anecdote told of the late Commodore Fyffe. In those days, too, things were different in the respect that once in port after a voyage across the ocean a naval vessel often remained for months, and after a time the people ashore, and particularly American residents, began to look upon her as more or less belonging to them. They "liked" or "disliked" her anchorage; thought she ought to lie farther in or out; wrote letters to the Captain protesting against evening gun-fire, on the ground that it disturbed the rest of those who sought their pillows early. According to the story, Fyffe had his ship at Yokohama; some of the residents found that the color of the ship did not suit them, and spoke to him about it. He, to give a healthy lesson of just how much they had to do with the question, painted one side of his ship red

and the other green. Moreover, it is said that he took pains and particular delight in giving the people in Yokohama a double sensation, for the painting was done toward nightfall, and when the sun rose the bright green side of the ship happened to be toward the town. Later

in the day, Yokohama was thrown into consternation by seeing the ship turn red as she swung and presented her other side. It is not recorded whether or not the Commodore painted her port side red and her starboard side green, to correspond with the running lights.

REAR ADMIRAL PILLSBURY'S RECOMMENDATIONS

A number of important recommendations for the good of the personnel and the fleet of the navy are embraced in the annual report of Rear Admiral John E. Pillsbury, Chief of the Bureau of Navigation, submitted to the Secretary of the Navy on November 1.

The report reviews the movements of the Atlantic and Pacific Fleets for the year and points out ways in which the efficiency and value of the service may be improved. Some of the more important recommendations may be itemized as follows:—

The prompt establishment and defense of naval bases in the insular possessions.

The revival of the grade of vice-admiral and the appointment of five vice-admirals at an early date.

Officers on the list of captains and commanders who are eligible only for engineering duty ashore, and who can never command ships or perform service at sea, shall be carried in the Navy List as "extra" numbers, so that an equal number of officers of the line can be promoted to those two grades for sea service.

Longer service afloat for flag and commanding officers, so as to utilize their experience to the fullest possible extent.

Reduction in the number of appointments to the Naval Academy, so as to avoid an excess of graduates.

Reduction of the age of candidates for admission to the Naval Academy to a minimum of fifteen and a maximum of seventeen years.

The acquisition of the Jamestown Exposition Grounds for use as a naval training station.

The changing of the name of the Bureau of Navigation to the "Bureau of Personnel and the Fleet."

THE GREAT NEED OF INSULAR NAVAL BASES

One of the most important of these recommendations is the one first given above,—pointing out the urgent need of the adequate establishment and protection of naval

bases in Cuba, Hawaii, and the Philippines. So important does Rear Admiral Pillsbury—who has given the subject of the location of strategic bases much thought—consider this matter that he recommends the completion of these bases in preference to the completion of the fortification of the continental coast ports. He says:—

"The Bureau begs to invite your attention to the lack of a defended naval base in either the insular possessions in the East or in the Caribbean Sea, the probable theatres of action in any war in which the Navy might be called upon to engage. So important is this question believed to be to the nation that, in the opinion of the Bureau, all appropriations for new improvements at naval stations or for the defense of the coast ports of the United States, should give way to the establishment and the defense of naval bases in the Philippines, at Pearl Harbor, and at Guantanamo, for these bases are vital to our success in a war."

In connection with this recommendation it is especially interesting at this time to recall the fact that a few years ago Congress appropriated several thousand dollars for the establishment of a large naval dry dock at the proposed American naval base at Guantanamo, Cuba. Under this enactment the Department proceeded with the work, but after the original appropriation had been expended Congress failed to make further advances and all that was accomplished there has been lost, up to the present time. All that the Government has to show for the money is the great hole in the ground and the piling that was sunk in the prosecution of the work. This excavation fills up with water and at regular intervals has to be pumped out to keep the teredo worm from eating away the timber. Although the United States has been in control of the region around Manila for ten years, it has been only in the past two years that real work has been accomplished in the defense of Luzon, and funds are urgently needed for the establishment of an adequate naval base

on that island. For an even longer period the United States has been legal master of the Hawaiian Islands; but scarcely anything was done by Congress until last spring, when a pretty good appropriation was allowed for the beginning of the new naval base at Pearl Harbor. Under treaty arrangements with Cuba, the American Government has property for a naval base at Guantanamo, and the development of this ground will become all the more important when the Panama Canal is completed. Naval bases are very much like battleships—they cannot be created over night and even after the money is appropriated several years are required to complete the project. Rear Admiral Pillsbury does the country and the Navy a service to impress upon the proper authorities, especially Congress, the importance not only of these naval bases, but also of Guantanamo, which is as important to the Atlantic as Pearl Harbor and Subig Bay or Manila are to the Pacific.

FIVE VICE ADMIRALS NECESSARY

In the September issue of *THE NAVY* reasons were set forth why the grade of Vice Admiral should be revived for the Navy. This is a matter which has been urged by successive Presidents, Secretaries of the Navy, and Chiefs of the Bureau of Navigation, until they have almost despaired of ever accomplishing anything in that direction. Still, they are confident that Congress will soon realize the necessity for such legislation, and Rear-Admiral Pillsbury renews in his report the recommendations of his predecessors in favor of vice admirals.

In the discussion of this subject his report says, most cogently:—

"Rank naturally goes with command, and no better illustration of our deficiencies in this respect is shown than in the command of the fleet of ships now on its voyage around the world. Here are 16 battle ships of the first class with auxiliaries. It is the most powerful fleet that ever attempted to make such a voyage. It is the center of naval attraction of the world, and in spite of adverse criticism and alarming prediction, it has thus far pursued its voyage in accordance with its prearranged itinerary. The commander in chief of this force has only the rank of rear-admiral. With any other service than our own this fleet would be commanded by an admiral, with a vice-admiral second in command, and with rear-admirals as division commanders.

"It is urged as due to the service and to the country that the commanders in chief of our Atlantic and Pacific fleets should at least have the rank of vice-admiral, and it is recommended that five vice-admirals be authorized by the Congress to be selected in the following manner:

A board shall be appointed by the President when vacancies occur, consisting of officers of the line of the Navy of flag rank on the retired list, who have had, if practicable, actual command of fleets, squadrons, or divisions of vessels, and who have been retired within five years of the date of meeting of the board. These officers shall scrutinize the records and shall consider the fitness of all rear-admirals and captains on the active list of the Navy, and shall select therefrom the name of the officer best fitted, in their judgment, to be selected for promotion to the grade of vice-admiral, which officer may, in the discretion of the President, be nominated to the Senate for confirmation as such."

OFFICERS OF COMMAND RANK

The Pillsbury report points out that the board of five rear admirals to select officers for retirement in accordance with the terms of the Personnel Act of 1899, was not called upon to make selections, as all the vacancies which should occur by retirements under this act—forty above the grade of junior grade lieutenant—were caused either by casualty of the service or by voluntary retirement. Rear Admiral Pillsbury says:—

"Of this number, however, fifteen were voluntary retirements, mostly from command rank, and while it produced a flow of promotions from subordinate ranks, it has not gained to the rank of captain the number of commanding officers that it should, from the fact that many of these promoted were for engineering duty on shore only. There are at this date no less than 31 officers who are on the captains' and commanders' lists who are not available for command or for sea service. It is recommended that these officers may be carried as extra numbers, in order that the full number of captains and commanders authorized by law may be available for sea duty."

This is looked upon as a very valuable recommendation, and while Rear Admiral Pillsbury does not elaborate the idea, everyone familiar with the service understands how much may justly be said in favor of the proposition. Thirty-one engineer officers who perform only shore duty is a large number; and if Congress is not now impressed with the seriousness of the recommendation made by Rear Admiral Pillsbury, it will, within the next few years, have the predicament of the Department brought rather forcibly home to the service through the fact that a third of the roster of rear admirals will be shore-duty engineer officers who will not be able to take command afloat. This will leave about two-thirds of the rear admirals on the active list available at that time for sea service. Making extra numbers of the engineer officers

after they reach the commander's grade will not interfere with their promotions into the higher grades of the service, for they will be carried along and promoted just like all other extra numbers.

KEEPING EXPERIENCE IN CIRCULATION

During the regime of the former Chief of the Bureau. Rear Admiral Brownson, the President approved his policy of putting "in circulation" the experience of flag and commanding officers, by entrusting the higher commands only to officers who would not soon retire. It is natural that all officers should want to fly their pennants of rear admirals or exercise command of battleships, but those responsible for the efficiency of the fleet have long since come to the conclusion that better service can be rendered the nation by designating for the command of armored vessels and flagships only officers whose retirements are not imminent. In quite a number of instances in recent years officers have spent only a short time in the rear admiral's grade, and if entrusted with high command the experience gained by them would be carried into retirement. For this reason the policy was established of selecting for flag rank officers who combined ability with considerable remaining service on the active list. This was the motive actuating the choice of Rear Admiral Seabee as the commander of the special service squadron made up of the armored cruisers *Tennessee* and *Washington*, when they were last year transferred from the Atlantic to the Pacific Coast; and the choice of Rear Admiral Sperry as commander in chief of the Atlantic Fleet. Rear Admiral Sperry does not retire until September 3, 1909, and his command of the fleet will therefore extend over more than a year. Other efficient rear admirals who might otherwise have been entrusted with this important command were not chosen because they could not have served over a few months, on account of their retirement this past autumn.

Discussing the service of flag and commanding officers Rear Admiral Pillsbury says:—

"The tactical and disciplinary efficiency of the fleet as a whole depends upon the commander in chief, and frequent changes in the chief command are to be discouraged. A commander in chief is selected for the duty and as long as he has the confidence of the Department he should continue in command. While it is a great honor to a flag officer to fly his flag, yet the efficiency of the fleet demands that the experience gained by command should be utilized to the fullest extent, and this can best be accomplished by long service afloat and promo-

tion from subordinate command to chief command with the fleet itself.

"The object of the personnel act of March 3, 1899, in requiring a certain number of vacancies each year in the different grades of the line, was to bring officers to command rank at an earlier age than had been obtained prior thereto. The average age of captains when the law was passed was 55 years, and of commanders 53 years, and it is now 55 years and 50 years, respectively. While it is desirable that officers should arrive at command and flag rank when still relatively young, youth is not everything, for it must be combined with sea experience in order to be of the greatest value to the service and to the country."

SEA DUTY OF COMMANDERS AND JUNIOR OFFICERS

The question of the duty to be assigned officers of the various ranks is always a difficult one of solution and great care has to be exercised in seeing that officers are so assigned that their present duty will dovetail into their future position in the service. It is even more arduous to settle this question when there is a large shortage of officers, as there is at present and has been for a number of years. The Bureau of Navigation has in recent months been almost at its wit's ends to find enough officers to man the ships in active service, and the officers of the requisite grades and other qualifications for the particular details of duty to which they were to be assigned. In order to commission some ships, other ships have had to be placed out of commission or in reserve. Owing to the shortage of both officers and men, it was necessary last April to send the *Milwaukee* and *St. Louis* to the Puget Sound Navy Yard and to keep them in commission with reduced crews on board. Both of these ships have since been fully manned from the *Charleston* and have cruised for long distances, in order that by actual trial they might show whether they were in condition for service at short notice; but it has frequently happened in the past few years that ships being commissioned have put other ships out of commission.

Discussing another interesting phase of sea duty for commanders and junior officers, Rear Admiral Pillsbury says:—

"The commands for commanders are not sufficient to give each a tour at sea of much more than eighteen months and most of these commands are small vessels. These officers from the time of their promotion to commander until they are promoted to captain are entirely out of touch with the battle ships and large cruisers, the only ships they will command as captains. This led the Bureau to recommend that junior commanders should be

ordered to first-rate vessels as executive officers and with gratifying results. Some commanders realizing that the school to command a battle ship is the ship itself, have applied for duty as executive, and without a doubt they will be better fitted to command when the time comes than if they had not kept in touch with this class of ships.

The shortage of officers has required that among the junior grades they shall have almost continuous sea duty from the time of graduation until they have been commissioned about three years as lieutenants. These officers therefore are acquiring such knowledge of and experience in their profession that the service will reap the benefit of later. At the same time officers senior to these but below command rank are required to be at sea for practically a full term of three years, and then with but a short interval of shore duty before beginning another tour of duty at sea."

FEWER APPOINTMENTS FOR ANNAPOLIS

While there is a shortage of officers, especially in the higher and intermediate grades, it will not be long before there will be too many midshipmen, unless the number of annual graduates from Annapolis is reduced. The large classes which have recently left that institution and which are to be graduated during the next few years will have a very salutary effect upon the shortage in the lower grades, and the Department sees the time coming within the next few years when the number of graduates will have to be limited to the needs of the service.

Rear Admiral Pillsbury has a plan to accomplish this object, and sets it forth as follows:—

"Under the law each Senator, Representative, and Delegate in Congress is authorized to have two midshipmen at the Naval Academy all the time, and there is one midshipman from Porto Rico, who shall be a native of the island and appointed on the nomination of the governor. The President is allowed five appointments each year at large, and two from the District of Columbia. The course at the academy is four years, when the successors to midshipmen graduating are appointed. After completing the four years' course and graduating from the Academy, midshipmen go to sea for two years and are then examined in competitive examination, and those passing are commissioned ensigns in the Navy.

"Up to the present time the graduates of the academy have not been sufficient to fill the commissioned grades allowed by law, but at the rate of entry into the academy, as now provided for, the time is fast approaching when there will be a sufficient number of officers in the lower commissioned grades, and an excess of graduates.

"The most simple and what seems to be the best method of restricting the number of graduates is to extend the

period of nomination. If the law authorizing the appointment of two midshipmen by each Senator, Representative, and Delegate in Congress during the period of four years were extended to six years, this would operate to reduce by one-third the number of midshipmen promoted to ensign.

"It is therefore recommended that this action be taken to take effect on the 1st of June, 1909, at which time the law requires official notification to be sent Members of Congress of vacancies for midshipmen for the following year."

• YOUNGER OFFICERS

In this connection Rear Admiral Pillsbury indicates the need of arranging for the promotion of officers into the various grades at younger ages, and he outlines a way in which he believes the service can be benefited in this direction. In his annual report he touches the matter in these words:—

"It has been considered as desirable that officers should arrive at command flag rank at an earlier age. The personnel act of 1899 is effecting a change in this respect, the average age of officers promoted to commanders having been reduced about three years since the passage of the law. At the same time we are graduating midshipmen from the Naval Academy at an average age of more than 22, an age when these gentlemen should be sufficiently experienced to be promoted ensigns.

"Until 1889 the age of the candidates admitted to the Naval Academy was not less than 14 or more than 17 years. The law was then amended providing for a minimum age of not less than 16 and a maximum age of not more than 20 years.

"It is believed that entering the academy so late in life is not for the best interests of the service. It is true the older candidate may be better able to pass the entrance examination, but on the other hand after the candidate has once passed the examination, the younger and more impressionable boy inhibits the spirit of the service better than the older, and every year that we diminish the average age of those who enter the academy, we lower the age of final promotion to command and flag rank.

"It is therefore recommended that the law be so changed that on July 1 of the year of entrance to the Naval Academy, the minimum age of the candidates shall be 15 years and the maximum age shall be not over 17, the law to take effect from July 1, 1910. This will give an average age of those who enter of about 16½ years, and a graduating age of 20½ years, which is about two years below the average age of the graduates at the present time. It is possible that such reduction might necessitate a slight change in the entrance examination and in the curriculum of the academy, but both these conditions can readily be met without detriment to the service."

SERVICE ITEMS

BARRACKS FOR THE RECRUITS

"Why tents for the recruits?" This question is asked by nearly every observant visitor to the Norfolk Navy Yard. The answer is simple,—Congress has failed for some years to provide barracks for the men. It is especially important that proper housing facilities should be given these men. There should not only be barracks erected for recruits, but at every large naval station or base there should be similar structures for use by the enlisted personnel of the navy during the stay of their vessels at the yards for repairs. It is especially important, from every point of view, that recruits should be well housed and that their surroundings should be sanitary, pleasant, and comfortable during the earlier stages of their service in the navy, because it is not only conducive to good health and training, but has a great deal to do with their first impressions of the life of a sailor.

In his annual report as Chief of the Bureau of Navigation, Rear Admiral Pillsbury sets forth the thoroughly sensible and laudable ambitions of the Department with respect to barracks for recruits, and urges the establishment of a permanent training base on the grounds of the recent Jamestown Exposition. The chances are that something in this direction will be done by Congress during its coming session, inasmuch as the House Naval Committee late in the spring took favorable notice of a proposal for the government to buy the exposition property. The completion of a permanent station, if approved by the Department and by Congress, will take many months. Meanwhile, the housing needs of the service demand immediate improvement in the vicinity of the Chesapeake Bay. Rear Admiral Pillsbury accordingly asks for an immediate appropriation of \$600,000 for temporary structures, pending the building of barracks and a training station on that bay.

He says, in his discussion of the subject:—

"The expansion of the Navy in materiel and in its personnel has been provided for by the Congress. The accommodation, however, for the personnel has not kept pace with the expansion in other respects. We have a training station at Newport sufficient to accommodate 1500 recruits; a station at Yerba Buena, Cal., sufficient for 800 men; a station on the Great Lakes which will,

when completed in about a year, be sufficient for 1400 men.

"The Chesapeake Bay is the natural place of assembly for our Atlantic Fleet. Its anchorages are deep, they are fairly well protected from wind and weather, and its strategic position is the best on the coast, when we consider the possible theatres of action in war or the duty of the fleet in time of peace. To the northward of its entrance the ports in which a fleet of battle ships with its attending cruisers and auxiliaries can anchor, are but very few. South of the Chesapeake entrance there are none on our coast.

"Hampton Roads provides sufficient anchorage for such a fleet, and it should have near at hand a proper accommodation for recruits and other enlisted men that may be there assembled, ready to fill the ships with their complements.

"The station on the Great Lakes, which will eventually accommodate 1400 men, situated as it is a thousand or more miles from the coast, will be available more for the training than for the collection of men already trained and ready for service on board ship. On the seacoast, however, there should be accommodation for continuous-service men many of whom are reenlisted at coast recruiting stations, and for those who have finished their training at the Great Lakes station and are ready for active service.

"The land of the late Jamestown Exposition is well located for barracks and a training station; it is conveniently situated to Hampton Roads; it has a large basin which was built at the Government's expense, sufficient for all the small craft necessary for such a station. The buildings used for exhibition purposes are not fitted for barracks, as they are of light and perishable construction. The building called the "Auditorium" is a permanent construction and admirably suited for an administration building. If the land to a sufficient amount (about 100 acres), could be acquired by the Department and a moderate sum appropriated by the Congress for barracks, mess hall, detention buildings, sick quarters, and officers' quarters, the efficiency of the service in one of its pressing needs would be greatly increased.

"The cost of the land is not known, but as the exposition company is now indebted to the United States to the extent of several hundreds of thousands of dollars, it is believed that the debt will more than cover the value of the land.

"It is, therefore, recommended that the Department take steps to acquire this land and that the Congress be requested to appropriate the money for the necessary buildings for the establishment of suitable barracks and accessories as outlined above.

"The station at Norfolk now consists of a receiving ship (the *Franklin*), with an overflow ship (the *Richmond*) and some temporary buildings at St. Helena on the Elizabeth River, opposite the navy yard. The recruits are now living and have been living in tents; one building, formerly used for ordnance purposes, has been converted into a mess hall, which is able to accommodate 600 men, but at times there are as many as 1800 men and even more, so that when it is crowded meals must be served in three shifts.

"While the growing requirements of the service, due to expansion of the personnel, have obliged the Bureau to get along the best it can to provide for the emergency in the absence of Congressional enactment, it does not seem fitting that we should be obliged to house our recruits in tents while they are waiting for transfer to ships in commission, nor does it seem proper that the messing arrangements should be so meager as to demand at any time or under any circumstances that there should be three shifts for each of the three meals for each day in the week. The men can still continue to live in tents until permanent barracks are provided elsewhere, but there should be suitable messing arrangements for the main body of these men at the station, and some detention buildings similar to those at the Newport station for the new recruits."

THE FLEET HOMEWARD BOUND

Since the return of President Roosevelt and Secretary Metcalf to Washington from their vacations, plans have been worked out in the Navy Department for the return of the Atlantic battleship fleet under command of Rear-Admiral Charles S. Sperry to the eastern coast of the United States. The fleet of sixteen battleships will sail from Manila on their return voyage on December 1 and less than three months later the entire fleet will again be mobilized in the Atlantic Ocean.

Rear-Admiral J. E. Pillsbury, chief of the Bureau of Navigation, announced the itinerary of the fleet from Manila to Hampton Roads on October 5, and several days later the announcement was made that the review of the vessels by President Roosevelt when they reach the shores of the United States again on February 22, 1909, will take place at Hampton Roads instead of New York. Rivalry has been keen between New York City and Hampton Roads for this spectacular event and it has now been settled by the decision to have the actual review take place at Hampton Roads and then have the vessels steam away from that vicinity almost immediately afterwards and proceed to New York, where the men who have taken the fleet around the world will be granted shore liberty.

Under this compromise arrangement, both sections of the Atlantic coast will see the vessels with their officers and crews immediately after the completion of the long voyage, and after such a journey it is well that as many Americans as possible should have this privilege. Everywhere the fleet has gone, the welcome accorded by foreign governments and populaces has been overwhelming. Americans themselves will not be outdone in the most significant and impressive of all welcomes—that attending the successful completion of the entire journey of the battleships.

The fleet left Hampton Roads on December 16, 1907, and upon its return February 22, 1909, will have been absent and en voyage one year two months and six days. During that period it will have travelled approximately 42,227 miles. The ports of five continents have been included in the itinerary, and the journey has naturally divided itself into three parts. The first part from Hampton Roads to San Francisco was actually 14,441 nautical miles. The second, from San Francisco to Manila by way of the Hawaiian Islands, New Zealand, Australia, and Japan, approximates 16,218 miles. The third portion of the journey, during which the homeward-bound pennants fly from the mastheads, will be from Manila to Hampton Roads by way of India, the Suez Canal, Mediterranean ports, and Gibraltar. This section of the route is about 11,568 miles, not including the side calls at the ports of the Mediterranean. Neither does it include the steaming of the fleet up and down the coast of California, Oregon, and Washington last summer, when the battleships went from San Francisco to northern Pacific Coast yards for repairs. When the actual distance travelled is fully calculated it will be found that it amounts to more than 45,000 miles.

When the fleet started last December it was intended that the ships that were to return should do so within a year. The invitations from Australia, China, and Japan had not then been received; but with the acceptance of these and the decision that the semi-annual target practice should not be omitted, it seemed expedient to extend the time of the voyage, for there would be no purpose in attempting to make a record, and there is no doubt that the extra two months over the year will have been valuably spent in target practice.

The officially announced itinerary for the return voyage as given out October 5 is given below. Ships are to pass through the Suez Canal and to coal at Port Said as expeditiously as possible, and as soon as ships

launching. The work upon all of the present-day British *Dreadnoughts* has been remarkably rapid. The keel of the original *Dreadnought* was laid October 2, 1905; the vessel was launched about four months later, on February 10, 1906; and before the end of that year the ship was completed. Still, it must be borne in mind that there was special haste in the building of the *Dreadnought*. Ten months is the best the German Navy has done between the keel-laying and launching of any of its new vessels of the improved *Dreadnought* design. The keels of four of these all-big-gun ships were laid last year, to provide vessels to take the places of the old battleships *Bayern*, *Sachsen*, *Württemberg*, and *Baden*. And notwithstanding delays and labor difficulties (especially at the Vulkan Works at Stettin), three of these ships are already in the water: the *Nassau* was launched on March 7, the *Westfalen* on July 1, and the *Rheinland* on September 26. The fourth, temporarily designated as the *Ersatz Baden*, will be launched before the first of January.

With the launching of the *North Dakota*, there will be eleven *Dreadnoughts* either completed or launched. Great Britain has five of this new design, in commission, completing, or launched; Germany three; the United States one; and Japan two—the *Aki* and *Satsuma*, which are nearly completed. The *Delaware* will probably be launched at Newport News before the end of the present year.

AMONG THE SHIPS

Since September 1 a number of special movements of vessels have been ordered, on both coasts. On that date the *Olympia*, the *Chicago*, and the monitors *Nevada* and *Arkansas*, all belonging to the Naval Academy practice squadron and used by the midshipmen on their summer cruise, were placed in reserve at the Academy. The *Hartford* is to remain in commission and replace the *Severn* as station ship at the Academy. The latter is to go to the Norfolk yard for repairs, and then return to Annapolis. The *Bagley* has been detached from the Reserve Flotilla and assigned to the Naval Academy; and when the *Manly*, now being repaired at Norfolk, is completed, she, too, is to go to the Academy.

The *Texas* was placed in commission at the Norfolk yard September 1, and since September 29 has been stationed at the new Charleston navy yard as receiving ship.

On October 1 the third-class cruiser *Atlanta* (then used as barracks for the men of the Reserve Torpedo Flotilla) and such vessels as were in condition for service were

ordered to be transferred as rapidly as possible from the old reserve base at Norfolk to the new one at the Charleston yard.

The new scout cruiser *Chester* sailed from Ponta Delgada in the Azores for the Boston navy yard, for repairs after a "shaking-down" cruise. She reached there six days later, and afterward left for Rockland, Maine, where she arrived November 3. Her sister ship, the *Salem*, left the Boston yard for Guantanamo, for a shaking-down cruise, about the middle of October, stopping en route at New York. She left St. Thomas November 3, for Guantanamo, from which place she will proceed to Rockland, Maine, for the competitive trials of the scout cruisers to be held there.

The *Mayflower*, which has been off the Honduran port of Puerto Cortez, looking after American interests, has been ordered to New York when relieved by the *Des Moines*.

The new battleship *Idaho* sailed from the Philadelphia yard September 12 for Norfolk. Her final trial took place from Hampton Roads on September 22, and five days later she returned to Philadelphia. She has been fitted with the new "waste-basket" fighting masts similar in design to the one used in the *Florida* test.

The *New Hampshire*, another new first-class battleship, left the New York yard on September 5 for Tompkinsville, remaining there until the 9th, when her final trials commenced.

These two ships, with others, including the *Mississippi*, *Montana*, and *North Carolina*, all newly commissioned, were at Philadelphia by orders of the Department for a week, beginning October 4, in connection with the Founders' Week celebration. The *New Hampshire* was also at Fort Lee, New Jersey, to take part in the celebration there September 26; and from Philadelphia she was ordered to Bridgeport, Connecticut, to take part in the celebration of Columbus Day, October 12, by the United Italians of Connecticut. After leaving Philadelphia the battleships and armored cruisers (the *New Hampshire* after leaving Bridgeport) went to Atlantic coast yards for repairs, with instructions to join Rear Admiral Arnold's flagship, the *Dolphin*, by December 1.

The *Arethusa* has been assigned to the Pacific Fleet, and, together with the *Active* and *Navajo*, went to Magdalena Bay to lay out the target ranges for the Pacific Fleet's target practice, which began November 2.

The gunboat *Yorktown*, upon completion of her duty around the sealing grounds of Alaska, went to San

Francisco, and was ordered, with the *Albany* and *Buffalo*, to join the Pacific Fleet at San Diego on October 28, for a cruise to Magdalena Bay.

The *Charleston* left the Puget Sound Navy Yard late in October for the Asiatic station, via Honolulu and Guam, reaching Honolulu November 6. Upon her arrival in the Orient she will become the flagship of the Third Squadron of the Pacific Fleet, replacing the *Rainbow*.

The *Milwaukee* has been brought back from Amapala, on the west coast of Honduras, and placed in reserve at the Puget Sound Navy Yard on October 2.

The *Buffalo* left San Francisco on September 15 for Panama, to exchange drafts with the *Prairie*, and returned to San Francisco November 3.

The collier *Casar*, which left New York for Manila, via Suez, last April with two of our earlier submarines, the *Shark* and the *Porpoise*, which are to be left in the Orient for defensive use, having now completed that mission, sailed from Cairte November 6 for Boston via the Suez Canal.

The armored cruiser *Colorado*, which was unable to participate in the Samoan voyage of Rear Admiral Dayton's seven other vessels of the same type, on account of her grounding accident, has been repaired, and went to San Francisco the last of September to receive a silver

service presented to the ship by the State of Colorado. She sailed from San Francisco for Honolulu on October 7, rejoining the Pacific Fleet at Honolulu, thereby rounding out the armored cruiser squadron to two divisions of four vessels each.

THE RACE BETWEEN THE FLORIDA AND THE UTAH

There now seems to be no doubt that the keel of the new 20,000-ton battleship *Florida*—one of the two authorized in the Naval Act of 1908—will be laid before that of her sister ship, the *Utah*, which is to be constructed in a private shipbuilding yard. There will be close rivalry between the authorities at the New York navy yard, where the *Florida* is to be built, and the private shipbuilding contractors who are fortunate enough to get the contract for the *Utah*; these two forces will be pitted against each other, just as were those of the navy-yard and the Newport News Shipbuilding Company several years ago, in the construction of the sister ships *Connecticut* and *Louisiana*. The *Florida* has a slight advantage in this shipbuilding race, because contracts have already been awarded by the Navy Department for material for her hull, whereas the firm which is to be entrusted with the contract for the *Utah* has not yet been determined. Bids for the building of the *Utah* are to be opened at the office of the Secretary of the Navy on November 9.

FOREIGN NAVIES

GREAT BRITAIN

PLANS FOR THE SIXTEEN NEW DESTROYERS

Sixteen new torpedo-boat destroyers have been authorized to be built for the British Navy under the Parliamentary Vote of 1908—the greatest number of the destroyer type of vessel authorized in any one year for that service during the past ten years. It is true that twelve destroyers were authorized by the Extraordinary Program of 1898, ten by the Program of 1901-02, and fifteen by the Program of 1903-04; but the sixteen authorized in the Program of 1908-09 is greater than the aggregate number of destroyers authorized in all of the other programs since 1903. There were only six authorized in the Program of 1905-06, two by the Program of

1906-07, five by the Program of 1907-08, and none in 1904 and 1905. The five destroyers authorized last year by the Program of 1907-08 are ocean-going, oil-burning, 33-knot destroyers of the so-called "Trihal" class, and awards for their construction were made some weeks since.

The designs for the sixteen new destroyers of the Program of 1908-09, for which the Votes have been already made, have been worked out by the constructors, and specifications have, since the middle of September, been submitted to various firms which have been asked for tenders for their construction. Unusual interest attaches to the nature of these plans; and if the information received from reliable sources is correct, it would seem that there has been a sudden change in British destroyer designs, in spite of the splendid performances made by

the oil-burning, turbine-propelled, 33-knot vessels whose speed has been so exhaustively discussed in engineering and professional circles during the past year. It is said that these sixteen new destroyers for which contracts are soon to be let will average about 270 feet in length, with a beam of about 28 feet; that their displacement will be very close to 900 tons; and the indicated horsepower of the engines about 12,000. Their speed is to be 27 knots; and the fuel is to be coal instead of oil, although the immediately preceding designs of the "Tribal" class are oil-burners driven by turbine engines. The best obtainable information now is that these sixteen new craft will not burn oil; and if this should be the case, there will be considerable wonder expressed over that fact, because the question will be immediately asked, "Why are the latest type destroyers to burn coal if oil has proven so good a fuel medium?" Some criticism is already heard because these vessels are also to have a designed speed of only 27 knots. This is six knots less speed than is required of the "Tribal" class, such as the *Mohawk*, *Cossack*, and others just completed, which, like the five just laid down under the 1907 program, are 33-knot vessels. These new destroyers are to have two masts each, wireless telegraph apparatus, and two searchlights, and their equipment generally suggests that they have been intended for use in scouting and as despatch vessels, rather than as actual destroyers of torpedo craft. The assertion is made by one authority that they are more of the old type of torpedo gunboat than of the destroyer type and are probably a compromise in type for the many duties that they may perform in peace as well as in war. The admiralty stipulation that these vessels are to be limited to the use of coal fuel and at the rate of 1.1 pounds per square foot of heating surface per hour, has resulted in the boilers of the projected craft being designed very large, their average heating surface being something like 24,000 square feet, or nearly 5000 square feet for each boiler. In one respect the plans for these destroyers seemed to have been influenced by the principal consideration borne in mind in the specifications for all American torpedo boat destroyers of recent construction,—the principal of extra seaworthiness. The sea-keeping qualities of these new British destroyers are to be especially good. They are to have great structural strength and plenty of freeboard, and this adds to the weight, besides making them rather large vessels. The coal capacity is to be about 200 tons, or enough for a steaming radius of 1500 miles at 15 knots an hour.

GAS ENGINES FOR THE RATTLER

The first important step in the direction of developing internal combustion engines on a large scale for naval use has been taken in the fitting of such a plant for the propulsion of H. M. S. *Rattler*, an old gunboat of the British Navy, now used as a training ship for the Royal Naval Volunteers on the Clyde. Engineering and naval circles are more than ordinarily interested in this innovation, and the performances of the *Rattler*, which are said to have been satisfactory, will be studied with keen interest when the official data are available. The advantages of internal combustion engines are exceedingly great if such a type of propulsive machinery can be practically developed for naval use. Until the present time the question has been very largely an academic one, so far as the construction of large engines of this type are concerned, and it is for this reason that the installation of internal combustion engines upon the *Rattler* is attracting universal attention. Some of the first practical work in the development of these types of engines was that accomplished several years ago by the late Herr Capitaine, of Frankfort, who built several tug boats,—small, it is true,—with suction-gas engines. They were intended for canal use, but one of this type of craft, the *Emil Capitaine*, was tried in the Solent three years ago. She was only of 16 tons displacement and had a speed of 10 knots. She is said to have been the first suction-gas boat given trial in the open sea. The work of Herr Capitaine attracted the attention of the entire engineering world and particularly impressed the great shipbuilding and engine building firm of William Beardmore of Glasgow; so much so, in fact, that the firm decided to undertake the application of the internal-combustion principle to naval and merchant marine vessels of large displacement, if this could be found practicable. They started at it in a very practical way by directing Mr. W. W. May, the engineer of the Naval Construction Works, to prepare plans. Experimental plants were built and found to show considerable economy when compared with the performances of steam driven craft. Then it was that the Beardmore works began the construction of a 500 horse-power suction producer and marine gas engine to replace the steam machinery of the old gunboat *Rattler*. This vessel is 165 feet in length by 29 feet beam, and once had triple expansion steam engines. The 500 horse-power Beardmore-built marine gas engine was tried on the *Rattler* largely through the influence of the Marquis of Graham, commander of the Clyde Naval Volunteers,

and interest in everything pertaining to engineering and naval progress. Through his interest and enterprise of the Boardman the volunteers now have a vessel which was obsolete, but is now capable of taking them on long cruises successfully, and is, in addition, the first large vessel to be fitted with internal combustion propelling machinery. The gas-producer engine of the *Patrol* is of the vertical single-acting, open type, with five cylinders and a fly-wheel abaft the first two. The ordinary four-stroke cycle is used, each cylinder being 20 inches in diameter, with a stroke of 24 inches developing ten brake horse-power. The crank-shaft runs at 120 revolutions per minute. The pistons are not water-cooled and the open framing renders the connecting rods and cranks visible from either side. Low-tension, make-and-break ignition is employed and each cylinder has its own magneto.

WARE, RAPID DOCK CONSTRUCTION

A good example of rapid dock construction has just been furnished in the completion of two large docks,—intended primarily for mercantile marine purposes, but which in case of necessity could be used by vessels of the British Navy,—in connection with the establishment of the new shipbuilding works of Smith's Dock Company, Ltd., on the Yorkshire side of the River Tees, just east of the town of Middlesbrough, England. The site of this new yard was entirely covered with water at ordinary spring tides last year. It was only in the spring of 1907 that the company decided to acquire the site for the graving docks and the shipbuilding plant. This site covers sixteen acres, with frontage, to the docks, of 800 feet along the river. Two graving docks have now been completed. Their corner stones were laid in October, 1907, just a year ago, and their sluices have now been formally opened. One of the docks is 550 feet long 67 feet wide between entrance walls, and 26 feet deep over the sill at high water mark of ordinary spring tides. The corresponding dimensions of the other dock are 450 feet length, 61 feet width and 26 feet depth. In the construction of the docks the cofferdam method was used. This cofferdam was built of sheet piling, longitudinal in plan, with sides 644 feet long and 208 feet wide. The cofferdam completely surrounded the site of both docks.

THE BATTLESHIP *TÉMÉRAIRE*

England's third battleship of the *Dreadnought* class, named after the famous old fighting *Téméraire*, which

is due for completion in January, 1909,—that being the expiration of the 24-month period from the laying of the keel,—is now in a very forward stage of completion at the royal dockyard at Devonport. Her keel was laid there on January 1, 1907, and the vessel, which displaces 18,600 tons and is a sister of the *Bellerophon* and *Superb*, was launched on August 24, 1907. During the year that has elapsed since the launching ceremony, very rapid work has been accomplished. The equipment of the submerged torpedo tubes is complete and the ventilating motors have about been installed. During September progress was made in the fitting of the fittings for the incandescent electric lighting system: these are rather novel, being of new pattern and designed for use with the so-called "ring" system of wiring, and the *Téméraire* is the first British battleship to be so fitted. Under this system the main wiring is reduced to a simple main and return cable running around the entire ship, behind the armor, from which cable sub-mains feed the lamps, motors, and other users of electricity for lighting or power purposes aboard ship. The store rooms and living spaces between decks are nearly completed, as are also the officers' quarters, which are receiving very little woodwork. The mast equipment is complete. Toppallant mast and wireless yards have been set up and the insulated rigging is placed. The masts tower to a height of 180 feet, making the vessel look rather imposing. Another innovation is the absence of ventilating cowls, an innovation due to the introduction of electrically driven motor fans.

GERMANY

THE LAUNCHING OF THE *RHEINLAND ERSATZ WÜRTTEMBERG*

The *Rheinland*, another German all-big-gun-battleship of the so-called improved *Dreadnought* design, has just been launched. The launching ceremony was performed on Saturday, September 26, 1908, at the Vulkan Shipbuilding Yard, at Stettin. Very rapid work has been accomplished on the *Rheinland*, which, like the *Nassau* and the *Westfalen*, has been pushed with remarkable vigor under the new order of energy in the German Navy. In fact all three of these German *Dreadnoughts*, each of which is to mount twelve big guns of 11-inch caliber arranged in pairs in six turrets, have been launched during the present year, and a fourth—now carried on the

Imperial Navy List as the *Ersatz Baden*, and building at the Krupp Germania Yard at Kiel—is to be launched before the end of the present year. Four *Dreadnoughts* put into the water within a single year,—enough to make a very formidable squadron,—is something of which even Great Britain cannot boast. Altogether Great Britain now has only five *Dreadnoughts* afloat—provided we do not count the three battleship-cruisers of the *Indomitable* class—and the keel of the first of these, the *Dreadnought* herself, was laid in October, 1905; whereas the keel of the first of these German *Dreadnoughts*, the *Nassau*, was laid down as late as May, 1907. What the name of the fourth *Dreadnought* building at Kiel is to be has not yet been determined, but she is a sister ship of the *Rheinland*, which until launching was known as the *Ersatz Württemberg*.

The present German method of designating their ships temporarily as *Ersatz's* is rather confusing. The object, of course, is to indicate that the *Ersatz Württemberg*, for instance, is to take the place in the fighting fleet of the old *Württemberg*, which has become obsolete. After launching, the vessels are known only by the names with which they are christened, and in this way the vessels which, until launching were known as the *Ersatz Bayern*, the *Ersatz Sachsen*, and the *Ersatz Württemberg*, are now respectively known officially as the *Nassau*, the *Westfalen*, and the *Rheinland*, and by the latter names alone. In most other navies vessels not launched are temporarily designated alphabetically, as *A*, *B*, *C*, etc., until they are officially given the names with which they are to be christened. Austria also has the *Ersatz* habit and it is rather a bad one for those who haven't the time or the inclination to keep track of these vagaries in ship nomenclature.

The *Rheinland*, just launched, was, like the *Nassau*, laid down in May, 1907, and should have been launched in August, according to the plans of the German Admiralty. But work was pressed on her so vigorously, with men working day and night shifts, that the workmen began to complain and soon one of the most serious strikes of recent years was called. This greatly interfered with all work in the Vulkan Yard and delayed the actual launching an entire month. The *Rheinland* and her sister, which is soon to be launched at Kiel, belong to the 1907 building program of Germany, and are to be considerably heavier than the *Nassau* and *Westfalen*, which belong to the 1906 program, although only a few months nearer completion than the two of the *Rheinland* class. The displace-

ment of both of these types of German *Dreadnoughts* has been variously given, because the German Admiralty adopted a very strict policy of secrecy respecting everything connected with her present naval building plans and intentions. The *Nassau* and *Westfalen* displace between 17,000 and 18,000 tons, the figures being variously given as 17,600 and 17,710 tons. The displacement of the *Rheinland* and her sister will be close upon 19,000 tons. It has been given variously as 18,000, 18,300, and 19,000 tons. One authority says the *Rheinland* is about 700 tons heavier than the *Nassau*, and another that this increase in displacement over the original type-ship will be as much as 1,300 tons. The important thing is that the vessel just launched is considerably heavier. The chances are that the *Rheinland* is pretty close upon 19,000 tons, if she is to mount twelve 11-inch guns. The displacement of the British *Téméraire* class, mounting ten 12-inch guns, is 18,600 tons, and that of the British *St. Vincent's*, mounting the same number of guns, is 19,250 tons; while the *Utah* and *Florida* of the American Navy will displace about 20,000 each, mounting ten 12-inch guns. The *Rheinland* is understood to have a designed speed of 19 knots an hour, as compared with 21 knots for the British *Dreadnoughts* and the new American *Dreadnoughts*.

FRANCE

FRENCH NAVAL CONSTRUCTION

Under the naval increase program which the French Minister of Marine is carrying forward there is now an aggregate of eighty-two warships, great and small, to be completed under existing authorizations. This aggregate is made up of six battleships, two armored cruisers, twenty-eight torpedo boat destroyers, forty-five submarines, and a single gunboat. According to present calculations, twenty-four of the vessels now under construction will be completed in time to receive their first commissions during 1909,—one armored cruiser, ten torpedo boat destroyers, twelve submarines, and one gunboat. Besides these there are forty-five vessels upon which work will be continued in 1909, including the six battleships, another armored cruiser, eleven more destroyers, and twenty-seven additional submarines. It is also the intention to commence work on seven destroyers and six submarines during 1909. All of these vessels have already been authorized, and the policy of Minister

Thomson this year is the removal of the glut rather than any addition to the difficulties inherited from the Pelletan regime. In order to clear the slate, Minister Thomson is not asking for new battleships, but urged merely in the 1908-09 building program an addition of torpedo boat destroyers and submarines to those already provided for but not completed. During the coming winter there will probably be a recommendation for the laying down of battleships in addition to those already authorized.

One of the twenty-four vessels now under construction and to be finished in time for commissioning in 1909 is the armored cruiser *Edgar Quinet*, launched on September 21, 1907. She displaces 13,400 tons.

The list of vessels now completing and to be commissioned in 1909 includes ten torpedo boat destroyers—the *Glaive*, *Poignard*, *Massue*, *Mameluk*, *Voltigeur*, *Fanassin*, *Tirailleur*, *Lansquenot*, *Chasseur*, and *Cavalier*. Three of these, the *Glaive*, *Poignard*, and *Massue*, are being built in government arsenals, while the other seven are being completed in private shipbuilding yards.

There are also in the list of vessels to be completed in time to be commissioned in 1909 twelve submarines. These are distributed as follows: two of the *Emeraude* type; two of the *Pluviose* type; the *Q 73*, designed by M. Hutter and being built at Cherbourg; two of the *Laubeuf* type, the *Q 75* and *Q 76*, which are building at Rochefort; the *Q 74*, designed by M. Radiguet, and building at Cherbourg; the *Q 82*, designed by M. Bourdelle and building at Toulon; two of the *Laubeuf* type, the *Q 83* and *Q 84*, which are building at Toulon; and the *Q 89*, designed by M. Maurice, likewise building at Toulon.

The list of vessels to be finished in time for commissioning in 1909 contains one more vessel, the gunboat *Doudart-de-Lagrecé*. None of the battleships now building or authorized will be finished in 1909, but work will be continued on all six, the *Danton*, *Voltaire*, *Mirabeau*, *Diderot*, *Condorcet*, and *Vergniaud*, all of 18,320 tons, representing the French idea of the all-big-gun-ship. These and the armored cruiser *Waldeck-Roussseau* are therefore the most important of the vessels included in the list of forty-five upon which work is to be continued in 1909. The *Waldeck-Roussseau* was launched last March and cannot be finished before 1910. All of the destroyers laid down in years preceding the current program will be completed in 1909, with the exception of the *Janissaire*, which is under way at Rouen but will not be ready before January, 1910. Ten torpedo boat destroyers laid down in 1908 will have work continued on them

in 1909. At the present time they are designated as *M 66* to *M 75*, inclusive, but later on they will be named the *Cimetierre*, the *Dague*, the *Boutefeu*, the *Fourche*, the *Faulx*, the *Revolver*, the *Fougasse*, the *Latte*, the *Casque*, and the *Bouclier*.

Besides the cruiser, the battleships and these ten destroyers, there are not fewer than twenty-seven submarines to be built in 1909. They are designated and distributed around the shipbuilding arsenals and yards as follows: the *Q 70*, *Q 71*, *Q 72*, *Q 90*, and *Q 91*, at Cherbourg; the *Q 77*, *Q 78*, *Q 79*, *Q 80*, *Q 81*, *Q 92*, *Q 93*, and *Q 94*, at Rochefort; the *Q 85*, *Q 86*, *Q 87*, and *Q 88*, at Toulon; the *Q 95*, *Q 96*, *Q 97*, *Q 98*, *Q 99*, *Q 100*, *Q 101*, *Q 102*, *Q 103*, and *Q 104*, which are in hand at Rochefort.

In addition to the forty-five vessels upon which work will be continued in 1909, there are thirteen new vessels to be laid down in that year, all of them small. Seven are torpedo boat destroyers to be built in private yards, while the other six are submarines, two of which, the *Q 105* and *Q 106*, will be put in hand at Cherbourg; two, the *Q 107* and *Q 108*, will be built at Rochefort; and two, the *Q 109* and *Q 110*, at Toulon.

THE SUBMERSIBLE *PRAIRAL* LAUNCHED

The new French submersible *Prairal* was successfully launched at Cherbourg, France, at high tide on Saturday evening, September 26, 1908.

SPEED OF THE *JULES MICHELET*

During her ten-hour full-power trial in the latter part of September, the new French armored cruiser *Jules Michelet*, 12,750 tons, launched in August, 1905, developed a speed of 22.86 knots per hour, with a corresponding horse-power of 30,190. Her designed speed is 23 knots an hour.

NEW FRENCH EXPERIMENTAL TANK

A trial basin has been constructed near the maneuver grounds of Issy-les-Moulineaux, France, which were recently used for numerous flights with aeroplanes and dirigible balloons. This basin is for the use of the French Navy and is about 100 feet long. Above it there moves electrically a platform carrying observers and instruments for testing the best forms of hull to overcome wave resistance. There are connected with the basin a small electrical establishment and a shop where models of hulls are made in paraffin.

THE NAVY wishes particularly to commend itself to the membership of the Navy League. The League's formal statement of its policies includes practically the whole purpose of this magazine. THE NAVY will maintain a Navy League section, in which will appear such items as are supplied by the Secretary of the League and by Section officers. Chairmen and officers of League Sections and League members generally are invited to address the editor for publication on any matter which would be of particular interest to the League.

THE NAVY LEAGUE OF THE UNITED STATES

President: GENERAL HORACE PORTER

Vice-President: HON. WILLIAM MCADOO

Treasurer: CLINTON E. BRAINE
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Secretary: HENRY H. WARD

1908 I St. N.W., Washington, D.C.

Recorder: ROBERT S. SLOANE

Counsel: HERBERT L. SATTLEBEE

Any member of the Navy League who has not received a copy of the Navy League Manual, 1907, containing interesting notes on the Navy League in this country and Navy Leagues abroad, together with the full text of the Constitution and By-Laws, is invited to notify the Secretary, whereupon a copy will be supplied immediately.

The expenses of League Headquarters are not great and League business is carried on with the utmost regard for economy. Nevertheless it is necessary that all sections shall pay the practically nominal assessment of 25 cents for each member which was voted by the Annual Convention, January 22, 1907. So far, less than one-third of the Sections have paid this assessment, and the Treasurer urges that delinquent Sections remit without delay.

The purposes and organization of the League are such that members are much more important than dollars. In Article V, Section 2, of the By-Laws, is found the provision that with the explicit permission of the Board of Directors certain Sections may organize with dues of less than \$1.00. This was intended to provide a means of organizing Sections composed of minors, and Sections made up from the membership of existing organizations, where the conditions are such that to fix dues at \$1.00 would be inexpedient. This gives an opportunity to parent Sections in the several cities to materially advance the interests of the League by organizing such Sections. The Board of Directors will unquestionably approve the issue of charters to new Sections with dues fixed at as little as 10 cents annually for each member, where the circumstances warrant it. It is suggested that an effort be made to organize such Sections from the membership of local Y.M.C.A. organizations; from among classes of school children, from among operatives in factories and public-service corporations. All these classes have an

already existing common interest and usually some common meeting place, and by organizing as a Section of the League it would be possible to keep them in touch with League and naval affairs without that expense for postage and correspondence which is necessary in the case of Sections of more widely scattered membership.

THE ANNUAL CONVENTION

The Directors of the Navy League of the United States, in accordance with the provisions of Article X, Section 1, of the By-Laws of said League, do hereby designate the occasion of the arrival of the Atlantic Fleet as the time, and either the City of Washington or the City of New York as the place, for holding the Annual Convention of delegates from the several Sections, definite notice to be given later.

THE BOARD OF DIRECTORS OF THE NAVY LEAGUE OF THE UNITED STATES.

Dated, New York, N.Y.,
September 30, 1908.

In connection with the Annual Convention, which, according to the foregoing notice, will be held probably in February, 1909, it is proposed to make arrangements for League delegates and members to view the fleet. If the principal review of the fleet is held at Hampton Roads, the League Convention will be held in Washington, and an excursion will be arranged to Fortress Monroe, where a specially chartered steamer will be at the disposal of the League. If the principal review of the fleet is held in New York harbor, the Convention will be held in New York, and similar arrangements will be made for the chartering of a steamer for the League.

LECTURE BY REAR ADMIRAL EVANS

In connection with the lecture to be given by Rear Admiral Robley D. Evans, at Carnegie Hall, New York City, on January 8, 1909, under the auspices of the Navy

League, the committee in charge of arrangements wish to announce that it has been decided that Admiral Evans' subject will be: "From Hampton Roads to San Francisco, in Command of the Atlantic Fleet."

A reception committee of one hundred, including the Mayor of New York and city officials and gentlemen prominent in the city and State in connection with naval affairs, will be invited to be on the stage with Admiral Evans.

The Commandant of the Brooklyn Navy Yard and his staff,

General Fred D. Grant and his staff,

Captain J. W. Miller and his staff,

General Charles F. Roe and his staff,

Commanding officers of the first and second naval battalions with their respective staffs,

will be invited to act as members of the reception committee and to attend in uniform.

General Horace Porter will introduce Admiral Evans. It is expected that the Naval Militia of New York will furnish a guard of honor, consisting of officers, petty officers, and enlisted men in uniform, to be stationed about the building. The auditorium will be appropriately decorated with colors and signal flags.

The arrangements are in charge of a special committee, of which Mr. Herbert L. Satterlee is Chairman, and Mr. Clinton E. Braine is Secretary. Blocks of seats will be offered in advance of public sale to Sections of the Navy League in New York and vicinity, to the yacht clubs of New York, to the Naval Order, to the Naval Academy Alumni Association, to the Maritime Exchange, Stock Exchange, and other exchanges and organizations. In this manner members of organizations attending will be able to sit in groups. The boxes (about one hundred in number) will be sold at auction on a day of which notice will hereafter be given. Mr. Clinton E. Braine, Treasurer of the League, Room 48, No. 18 West 34th Street, New York City, has charge of the advance subscription and auction sales. The public sale of seats will be put in the hands of theater ticket agent.

Further details of the proposed arrangements will be announced later by the committee in charge and through these columns.

The present announcement is made in order that members of the League may be advised in advance of the plans for this lecture in New York. There is every indication that it will be a most notable occasion and one which should be attended by every member of the League who can possibly do so.

It is further announced that tentative arrangements have been made for a somewhat similar lecture to be held in Boston on January 12.

JUNIOR SECTIONS

One of the most important duties devolving upon Section officers, and one that has been greatly neglected, is that of interesting the youth of the land in the scope and purpose of the League and the advancement of its propaganda. The foreign Navy Leagues, particularly those of Germany and England, have always devoted a great deal of care and attention to this important branch of their work, and the results they have obtained have been most encouraging in arousing enthusiasm in naval affairs and exciting interest in all that pertains to the welfare of the navies of their prospective countries.

It is earnestly hoped that the members of the League, by founding of Junior Sections in their communities, will do their part to keep alive the traditions of our navy and to give greater strength and publicity to the work we are all striving to do.

THE NICHOLAS BIDDLE SECTION

The Nicholas Biddle Section of the Navy League held its annual meeting on October 29, at the Business and Professional Club, 1218 Chancellor Street, Philadelphia. The following officers were elected: Chairman, William S. Lloyd; Vice-Chairman, Edward Biddle; Treasurer, Dr. John W. Croskey; Secretary, Charles C. Bond.

By invitation of the Section, Henry H. Ward, Secretary of the League, attended the meeting and spoke informally of the progress that the League is now making and of the plans for the winter.

THE ADMIRAL DU PONT SECTION

The Admiral du Pont Section, which was recently organized at Wilmington, Delaware, has enrolled the following members: William T. Budd, John J. Raskob, Ulysses G. Glick, Francis I. du Pont, William Draper Brinckle, A. J. Branch, G. H. Kerr, John M. Mendinhall, John S. Rossell, Henderson Weir, George H. McGovern, R. J. Maclean, L. A. Bertolette, John Wainwright, William D. Mullen, James T. Bootes, William G. Cox, Persifor Frazer, Jr., Samuel K. Smith, W. B. Carswell, P. S. du Pont, Irene du Pont, Alexis I. du Pont, W. G. Ramsay, Edw. S. Lenthilhon, H. T. Brown, J. B. Nye, F. G. Tallman, H. M. Pierce, C. L. Petze, R. R. Carpenter, Roy L. Sharpe, W. W. Richards, J. W. Mathews, W. C. Matthews, W. J. Pumphrey, E. Ferriday, Eugene du Pont, F. I. Reynolds, F. A. Wardburg, C. B. Holliday.

VESSELS OF THE NAVY IN COMMISSION

WHERE STATIONED NOVEMBER 9, 1908

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Alabama	Navy Yard, New York	Mohican †	Olongapo, P. I.
Albany †	Magdalena Bay, Lower California	Monadnock †	Olongapo, P. I.
Alexander †	Manila, P. I.	Montana *	Norfolk, Va.
Alliance *	Culebra, West Indies	Monterey †	Olongapo, P. I.
Annapolis †	Auckland, New Zealand	Montgomery *	Newport, R. I.
Arethusa †	Magdalena Bay, Lower California	Morris	Newport, R. I.
Arkansas	Norfolk, Va.	Nanshan †	Manila, P. I.
Atlanta	Norfolk, Va.	Navajo †	Magdalena Bay, Lower California
Bagley	Annapolis, Md.	Nbraska *	Olongapo, P. I.
Bainbridge †	Annapolis, Md.	Nero *	Navy Yard, New York
Barney *	Annapolis, Md.	Nevada	Norfolk, Va.
Birmingham *	Boston, Mass.	Newark *	Guantanamo Bay, Cuba
Brutus	Norfolk, Va. (In reserve.)	New Hampshire *	Navy Yard, New York
Buffalo †	Mare Island, Cal.	New Jersey *	Manila, P. I.
Cesar *	En route from Manila to Boston, Mass.	Nina *	Annapolis, Md.
California †	Magdalena Bay, Lower California	Norfolkina *	Norfolk, Va.
Callao †	Manila, P. I.	Octopus *	Philadelpia, Pa.
Cassine *	Philadelpia, Pa.	Ohio *	Olongapo, P. I.
Celtic *	Navy Yard, New York	Olympia	Annapolis, Md. (In reserve.)
Charleston †	Honolulu	Osceola	Key West, Fla.
Chattanooga †	Manila, P. I.	Paduch *	Portsmouth, N. H.
Chauncey †	Cavite, P. I.	Panther *	Olongapo, P. I.
Chester *	Bradford, R. I.	Pennsylvania †	Magdalena Bay, Lower California
Chicago	Annapolis, Md. (In reserve.)	Pensacola	Training Station, San Francisco, Cal.
Cleveland †	Manila, P. I.	Peoria *	San Juan, Porto Rico
Colorado †	Magdalena Bay, Lower California	Perry †	Magdalena Bay, Lower California
Concord †	Manila, P. I.	Philadelpia	Bremerton, Wash.
Connecticut *	Manila, P. I.	Pike	Mare Island, Cal.
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Cuttlefish *	Philadelpia, Pa.	Potomac	Guantanamo Bay, Cuba
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Davis †	Magdalena Bay, Lower California	Preble †	Magdalena Bay, Lower California
Decatur †	Cavite, P. I.	Rainbow †	Manila, P. I.
DeLong *	Annapolis, Md.	Ranger *	En route to Bermuda
Denver †	Manila, P. I.	Relief †	Manila, P. I.
Des Moines *	Guantanamo Bay, Cuba	Rhodan †	Manila, P. I.
Dolphin *	Navy Yard, New York	Rowan †	Magdalena Bay, Lower California
Dubque *	En route to Truxillo, Honduras	Salem †	Guantanamo Bay, Cuba
Eagle *	En route to Port au Prince, Haiti	Samar †	Canton, China
Farragut †	Magdalena Bay, Lower California	Saturn †	San Diego, Cal.
Fortune	Mare Island, Cal.	Scorpion *	En route to Gibraltar
Fox †	Magdalena Bay, Lower California	Severn	Annapolis, Md.
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Hartford	Annapolis, Md.	Sylph †	Washington, D. C.
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Hull †	Magdalena Bay, Lower California	Texas	Charleston, S. C.
Idaho	Philadelpia, Pa.	Thornton *	Annapolis, Md.
Idaho *	Olongapo, P. I.	Tingoy	Annapolis, Md.
Independence	Mare Island, Cal.	Truxton †	Magdalena Bay, Lower California
Indiana	Philadelpia, Pa. (In reserve.)	Uncas *	Navy Yard, New York
Iris †	Olongapo, P. I.	Vermont	Olongapo, P. I.
Iroquoia †	Honolulu, Hawaii	Villalobos †	Hongkong, China
Justin †	Magdalena Bay, Lower California	Viper *	Philadelpia, Pa.
Kansas *	Manila, P. I.	Virginia *	Olongapo, P. I.
Kearsarge *	Olongapo, P. I.	Wabash	Boston, Mass.
Kentucky *	Olongapo, P. I.	Washington †	Magdalena Bay, Lower California
Lancaster	Philadelpia, Pa.	West Virginia †	Magdalena Bay, Lower California
Lawrence †	Magdalena Bay, Lower California	Whipple †	Magdalena Bay, Lower California
Lebanon	Bradford, R. I.	Wilmingon †	Manila, P. I.
Louisiana *	Olongapo, P. I.	Wisconsin *	Olongapo, P. I.
Maine	Portsmouth, N. H.	Wolverine	Portsmouth, N. H.
Manly	Annapolis, Md.	Wompat	Olongapo, P. I.
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Maryland †	Magdalena Bay, Lower California	Yankee *	Buzzards Bay
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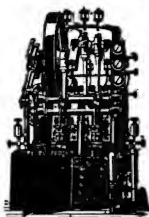
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THE PROCEEDINGS OF THE NEWPORT
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OFFICIAL SYNOPSIS OF THE NEWPORT
CONFERENCE

THE UTAH BIDS AND AWARD

THE WITHDRAWAL OF MARINES FROM
WARSHIPS

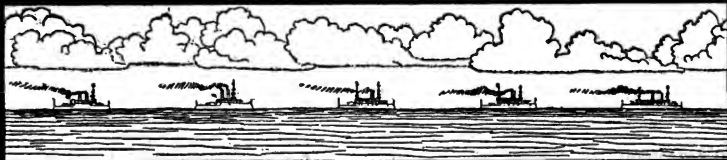
THE NORTH DAKOTA: ILLUSTRATIONS

SERVICE ITEMS

FOREIGN NAVIES

FOREIGN NAVAL CORRESPONDENCE

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THE NAVY

Vol. II

WASHINGTON, D.C., NOVEMBER, 1908

No. 10

NOTE AND COMMENT

ON November 13, Mr. Victor H. Metcalf, Secretary of the Navy, presented to the President his resignation, to take effect on December 1, on which date *Mr. Newberry* he was succeeded by the former Assistant Secretary, Mr. Truman H. Newberry of Michigan.

There is general gratification in the navy and among the friends of the navy that Mr. Newberry has been given this appointment. Aside from his well-known personal qualifications, his three years of experience in naval administration not only give him a great advantage over the five Secretaries that have preceded him since 1901, but also give the navy a great advantage in going through a change of this nature without necessarily involving it in material change of policy made on account of mere change of personal view-point in the head of the Department. Mr. Newberry had been three years Assistant Secretary and during many months of Mr. Metcalf's administration had been Acting Secretary, many important measures of the Department having been originated and carried through by him.

All who have watched the navy realize that changes have been frequent of late years, but few, perhaps, realize that going back to 1901 the "roster" of Secretaries reads as follows: Mr. John D. Long, then going out of office, followed by Mr. William H. Moody, Mr. Paul Morton, Mr. Charles J. Bonaparte, Mr. Victor H. Metcalf, and finally Mr. Truman H. Newberry.

No announcement has yet been made as to whether Mr. Newberry's appointment will hold over to the next administration; but it is believed that in case Mr. Newberry does relinquish the office, it will be to take some important position in the diplomatic service. One or two other names have been mentioned as possibilities for the office after March 4 next. Whoever is to be the Secretary of the Navy after March 4, it is hoped that the office will cease to be a stepping stone to some other cabinet position, and that a man really devoted to the navy,

and knowing the navy, will take the position. It is to be hoped, moreover, that the appointment will not be made simply on grounds of general ability or to satisfy the claim of some one, however able he may be, merely to be appointed to *some* cabinet office. It is hoped also that, whatever of ability and fitness is available in any appointee, will be fully devoted to the service, which literally can be said to have *suffered* under the administration of five able men in seven years.

MR. HERBERT L. SATTERLEE, of New York, a lawyer of prominence, long connected with naval matters, was appointed to succeed Mr. Newberry as Assistant Secretary of the Navy, and took office on December 3.

The New Assistant Secretary Mr. Satterlee has shown his practical interest in the navy through many years, as an organizer of the Navy League and as its Counsel and one of its Board of Directors. During the war with Spain he held a commission as lieutenant in the navy.

In the Office of Assistant Secretary it is desirable that the same considerations should prevail as in that of Secretary; and whether Mr. Satterlee remains in office after March 4 next or not, it is hoped that here, too, the navy may have an official his equal in ability, who would continue in office not merely for his own convenience, but with a single view to the good of the service.

THE appointment of M. Picard as the new French Minister of Marine marks a change in French naval

The New French Minister of Marine policy that is as radical as it is unexpected. The French have found that ministers drawn from the ranks of politicians were unable to exercise sufficient authority and were more or less subject to political influences. Not only was there disorganization in the executive depart-

ments of the French Navy, but also evil results from the influence of Socialist unions upon employees of the arsenals. Therefore the President of the Council decided upon the selection of a man who held himself entirely aloof from the politicians and was at the same time a capable organizer. Hence the choice of M. Picard, who is an eminent engineer, with a wonderful capacity for work, and enjoys a popular reputation for high administrative ability. He is to devote his attention especially to the organization of the different services and arsenals, and is to be assisted in the solution of all technical questions by an officer whom he has taken as collaborator, and also by the Conseil Supérieur de la Marine. Already the new Minister's investigations have revealed some almost incredible instances of waste and extravagance.

Wherever navies have shown signs of decay instead of progress in any part of the world, the cause has usually been traceable to poor executive administration. A progressive and efficient personnel is helpless in the face of a weak executive, and changes of administration too often have their effect upon the service. The troubles which have been burdening the French Navy for nearly a decade have been attributable largely to the lack of strong administrative qualifications during the regime of former Minister Pelletan. Only recently Minister of Marine Thomson has been forced to resign on account of the state of the French Navy and a series of accidents traceable to the failure to approve technical recommendations by naval officers, when it should have been apparent that danger was being courted through inaction. These recommendations, some of which were made even before the *Juna* accident occurred, and were pigeon-holed, were in connection with French powders.

M. GUSTAVE CANET, the distinguished expert in gun construction, died on October 7 at his seaside home at St. Aubin sur Mer, and has been buried in Paris. He was probably the greatest contemporary French authority on naval ordnance, and last year read before the Junior Institution of Engineers at London, of which he was president, an interesting paper in which he made exhaustive comparison between French and English artillery.

Twenty-seven years ago M. Canet laid down the ordnance department of the well-known French shipbuilding firm of the Société Anonyme des Forges et Chantiers de la Méditerranée at Havre, France, and was in complete charge of its artillery department until 1897, when com-

petition between the Havre ordnance shops and the great Crensat works of the Messrs. Schneider resulted in the amalgamation of these gun establishments at Crensat and the selection by the Schneiders of M. Canet as the director of the whole concern. Vast sums were spent by the Schneiders in developing ordnance factories and proving grounds at both places, and they also acquired a long-range proving ground at Tancerville, east of Havre, all of which was under Canet's control during the past ten years. Many foreign warships were equipped with French naval ordnance manufactured at the Havre works under the direction of M. Canet, among them the *Itsukushima*, *Matsushima*, and *Hashidate* for Japan, besides various ships for the navies of Greece, Chili, Spain, Sweden, Denmark, and Portugal.

PRESIDENT ROOSEVELT issued an executive order November 12 assigning the Marine Corps to duty on shore and intended to withdraw them from service aboard vessels of the navy. No order affecting the service has created greater discussion since the one that was issued a year ago placing a naval surgeon in command of the hospital ship *Relief*. It is understood that Rear Admiral Robley D. Evans, retired, advocated the innovation now ordered by the President, and it is known that Commander William F. Fullam, commandant of the naval training station at Newport and commanding the U. S. S. *Constellation*, has for some time advocated the withdrawal of the marines.

There is no doubt about the legality of the order; for before issuing it, President Roosevelt conferred with Attorney General Bonaparte and obtained an opinion regarding the legality of the action contemplated. The law is quite plain on the subject. Those who seem inclined to regard the action as a mistake merely question the wisdom of the order. One of the objections heard is that discipline aboard ship may be affected, since the police duties about fell upon the Marine Corps. Others contend that the police service of the marines can be performed just as well by bluejackets. The President undoubtedly considered the effect of his action upon discipline and other phases of the service before he issued the order.

His executive order is as follows:—

"In accordance with the power vested in me by section 1610, Revised Statutes, of the United States, the following duties are assigned to the Marine Corps:

"1. To garrison the different navy yards and naval stations, both within and beyond the continental limits of the United States.

"2. To furnish the first line of the mobile defence of naval bases and naval stations beyond the continental limits of the United States.

"3. To man such naval defences and to aid in manning, if necessary, such other defences as may be erected for the defence of naval bases and naval stations beyond the continental limits of the United States.

"4. To garrison the Isthmian Canal Zone, Panama.

"5. To furnish such garrisons and expeditionary forces for duty beyond the seas as may be necessary in time of peace."

The United States Marine Corps was established in Revolutionary times. Congress, in November, 1775, authorized the enlistment of two battalions of marines. After the adoption of the Constitution and the formation of the nation, the Marine Corps became a permanent arm of the service, by the Act of July 11, 1798, which "established and organized a Marine Corps." The Marine Corps has ever since been liable, under the President's direction, to duty in forts and garrisons of the United States, on the seacoast, or any other duty on shore. This is all established by law, and, under the law, the President may assign them to such duty aboard ships as he may desire. Marines, when enlisted, are exempt from arrest for debt or contract. The corps has no regimental organization, but it may be formed into as many companies or detachments as the President may direct. Marines are at all times subject to the laws and regulations of the navy, except when detached by order of the President for service in the army; they are then subject to the rules prescribed for the army.

The position of the corps has risen in importance and respect, as it has greatly increased, since its establishment. Officers and men of the corps distinguished themselves in the initial land operations of the Santiago campaign during the war with Spain as well as in the first expedition of foreign forces on Chinese territory during the Boxer troubles of 1900. The corps has also a long record of good service in many other expeditions. The idea of removing the marines is not new. It has been discussed many years in the service, and it is understood that an unsuccessful effort was once made in Congress to abolish the corps.

The marine guard aboard a battleship is now about sixty officers and men. These are not all to be withdrawn from all ships at once. They are to be gradually detached from the ships, and bluejackets substituted. Orders were cabled to Rear Admiral Sperry, commanding

the Atlantic battleship fleet, in Manila Bay, on November 17, directing him to leave the marine guard of two of the battleships at Olongapo for regular duty at that station. The other marines on the fleet are to be brought home and sent ashore in compliance with the President's recent executive order. The marines on the Pacific fleet will not be removed until the armored cruiser squadron completes its cruise to the South American coast.

IN VIEW of the well-known lack of uniformity in coal consumption between vessels, when steaming under similar conditions,—which lack of uniformity

Competition in Steaming

was emphasized in the voyage of the Atlantic battleship fleet from Hampton Roads and Trinidad,—Rear Admiral Evans, then commander-in-chief, published an order at Rio de Janeiro creating a system of competition in steaming and in machinery efficiency, in an attempt to introduce into this branch of the profession the competition that, since its establishment some years ago, has worked such desirable results in gunnery. This scheme met with the greatest success, and resulted in saving, between Rio and Magdalena Bay, 1460 tons of coal that would have been burned at the rate of consumption that existed before the promulgation of the order. The average cost of this coal was \$3 a ton. The cost of its transportation under the contracts made a year ago was \$3.10 a ton to Rio de Janeiro, \$4.90 a ton to Punta Arenas, \$6.09 a ton to Callao, and \$6.50 a ton to Magdalena Bay. Reports regarding the further economy in coal consumption received by Rear Admiral Pillsbury of the Bureau of Navigation from Rear Admiral Sperry, the present commander-in-chief of the fleet, after its arrival at Australia show that the competition resulted in a saving of more than 2000 tons on the voyage from Honolulu to Auckland over the standard set on the voyage to Magdalena Bay. In the opinion of Rear Admiral Pillsbury this order "was one of the most important and far-reaching that has been issued since the creation of the present gunnery system," and steps are now in progress looking to its extension to the entire navy. Even without the desired incentive of prizes, which cannot be offered without Congressional action, the officers and men have taken the keenest interest in the matter, and the Bureau of Navigation earnestly recommends that Congress be again asked to appropriate the small sum of \$5000, so that prizes may be awarded as already recommended. The saving in coal in the Atlantic Fleet has already amounted to more than the money asked for these prizes.

 NOVEMBER **THE NAVY** 1908

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THE PROCEEDINGS OF THE NEWPORT CONFERENCE

The official public statement of the proceedings and conclusions of the Newport Conference, as summarized by the General Board under the order of the Department, with accompanying papers, was issued by the Navy Department under date of November 18, 1908, as General Order No. 78. The full text of this order is given on page 28 *et seq.* of this number.

The more important of the accompanying papers are the letter of August 26 addressed by the Acting Secretary of the Navy to the President, wherein, in forwarding the full record of the proceedings of the Conference, he comments on the principal points involved, and the letter of Commander Key, dated June 9, 1908, wherein he criticized the design of the *North Dakota* and *Delaware*, then under construction. As is known, the Conference gave special consideration not only to these vessels, but to the *Utah* and *Florida*, for which contracts were about to be let.

It will be necessary to read the résumé most attentively, in order to understand the scope of the Conference and the general tenor of its findings.

It should be observed that the summary was prepared under instructions that, for reasons of public policy, it should not reveal the conclusions of the Conference as to future design.

There has been a great deal of misunderstanding in the non-professional mind concerning the real work of the Newport Conference. Many assumed that it was to consider alleged defects in ships afloat. As a matter of fact it was called primarily to consider the comments made in the letter of Commander Key. The orders guiding the Conference grouped the work under four general headings:—

First: To determine whether in the *North Dakota* and *Delaware* defects existed as alleged by Commander Key.

Second: To decide whether any or all of these defects should be wholly or partially remedied.

Third: To report whether any defects found to exist in the *North Dakota* could or should be avoided in the *Utah* and *Florida*.

Fourth: "Particularly" to make a recommendation as to all of the military characteristics which should be built in future ships, including special reference to armor and armament.

As to the defects alleged in the Key letter, the synopsis shows unmistakably that the Conference accepted them as having been mostly established, various resolutions placing a majority of the Conference on record as considering that the torpedo-defence battery is placed too low; that the 12-inch power magazine for the third big turret is undesirably located; that the main battery weapons are less powerful than those being built by England for a contemporaneous group of vessels (the *St. Vincent* class, which are to carry 50-caliber weapons against the 45-caliber big guns of the *North Dakota* class); that the No. 3 turret is too high and the No. 4 is too low; that the transverse sections of the conning tower are too narrow; that the uptakes and ventilator supply pipes are inadequately protected in the citadel; and that the steering gear is not thoroughly protected. In carrying out the first part of its program, the majority of the Conference justified the position taken by Commander Key.

This brought the Conference to the question whether any of these defects could be remedied in the *North Dakota* and *Delaware*. It was found impracticable and

inadvisable to introduce most of these changes, *because both vessels were nearly fifty per cent completed at the time the votes were taken*. Accordingly but few specific changes were recommended in these two battleships, the principal ones being the addition of splinter bulkheads to protect the uptakes and ventilator supply pipes, the refrigeration of all magazines, and the addition of another fire-control mast of the new type, making two such masts on each of the vessels.

Having disposed of the *North Dakota* and *Delaware*, whose construction had advanced too far to admit of all of the changes considered desirable, the Conference inquired whether the *North Dakota* defects could be remedied in the *Utah* and *Florida*, for which plans had been in preparation six months and which are now about to be laid down. The recommendations for the latter two ships were based largely on the previous action respecting the *North Dakota*, and the proceedings show that the principal changes recommended for the *Utah* and *Florida* are that the uptakes be protected by a weight equivalent to a casemate armor eight inches thick, to be divided between side armor and fore-and-aft splinter bulkhead; that the *Floridas* carry a torpedo defence battery of 5-inch guns designed for high initial velocity and flat trajectory; that refrigerating apparatus be installed for all powder magazines; and that another fire control mast be added.

It was the sense of the Conference that it would be inexpedient to delay in any way the placing of the contract for the *Utah* and *Florida*. However, President Roosevelt sent a telegram to the Conference directing it to submit recommendations for the *Utah* class, covering plans to remove all defects found in the *North Dakota* class, both with and without regard to delay in the execution of the plans. The Conference preferred no delay; but concluded that, if it should be desired to delay sixty days in letting the contracts, the *Florida's* steering gear might be protected further and alterations might be made in the elevation of two turrets. If this suggestion were adopted the proposals for building the *Utah* could not be asked for before January 1.

As to the value of the comments of Commander Key there is no doubt. The Conference by resolution tendered him a vote of thanks, and recommended that similar conferences be held annually. It declared by resolutions its conclusions that American battleships should be built in tactical groups of four, and that there should be a special board of naval officers, not to exceed thirteen in number, selected to pass upon the designs of future ships.

Even the foregoing, intended to summarize to some extent the official résumé, may fail to convey the idea, which should not be overlooked, that the specific changes recommended in the *North Dakotas* and the *Floridas* did not by any means indicate the general conclusions of the Conference as to what our future ships should be. A careful reading of the summary will show that even in the cases of the *Floridas*, for which contracts had not then been let, the Conference was disinclined, except in a few cases, to recommend even that delay which would be necessary to change the design; and in the case of the *North Dakotas* the desire to avoid delay was the controlling consideration when it came to the question of whether a particular change should or should not be made.

To any one who reads carefully between the lines of the summary it is perfectly apparent that the severest criticism of the four ships of which the summary treats is the unpublished recommendations of the Conference as to what the new ships yet to be authorized shall be.

It is, perhaps, unfortunate that the work of compiling this summary was entrusted to the General Board, for the General Board, however impartial it may be, is to some extent part of the system which has of recent months been under such severe public criticism. The work would have been done just as satisfactorily had an independent board of officers been ordered for the purpose and in that case the possibility of the suggestion of partisanship might have been avoided.

Although it is perfectly apparent that the Conference did sustain the criticisms of the *Dakotas* and *Floridas* and did justify the more serious technical criticisms

which have been leveled at the Bureau System of Design, it has been said, and said with much apparent justice, that the Conference itself was far from ideal, from the point of view either of the rules under which it worked, or the possibilities of partisanship among its members. It would seem as though the voting power of the Conference should have rested entirely with sea-going officers, that none who, like Commander Key, were committed to a certain policy, should have been allowed to vote. He, others who were known to have joined issue with him, and those representatives of the Bureaus under criticism—i. e., Construction and Repair, Ordnance, Steam Engineering and Equipment, whose Chiefs form the Board on Construction—should have been present merely to sustain the points which they urged, but should not have been allowed to vote. They should have been allowed to present figures and to argue the points at issue, but obviously with such known partisans allowed to sit and vote on the Board, the question of how that Board should be made up would determine to some extent the conclusions reached. In other words, the matter was more under the control of the Department than was entirely desirable.

Let us look into the personnel of this Conference a little more in detail. Of the 63 voting members, 10 were non-seagoing officers—i. e., 1 retired line officer, 2 line officers having engineering duty on shore only, 4 naval constructors, 1 professor of mathematics, 2 marine officers. In the early days of the Conference 3 seagoing officers were detached, and the 50 remaining were divided as follows: Bureau members, 9; General Board members, 6; War College members, 4; all others, 31. Of some of these thirty-one, there is reason to doubt their complete independence of bureau influence; but inasmuch as it is not so obvious as in the other cases referred to, the connection is not mentioned. It should not pass unnoticed, either, that the presiding officer of the Conference was a member of the special Board that approved the plans of the *North Dakotas*. In view of this makeup, it is not somewhat surprising that the Conference went even as far as it did in the matter of sustaining the criticisms?

LETTERS TO THE EDITOR

We ask our friends, in and out of the service, to favor us with letters for publication, discussing current naval topics. We should be glad to have their suggestions as to matters which we may take up to urge upon Congress or the Department.

Letters to THE NAVY will be printed, when deemed of general interest, whether or not they are in accord with THE NAVY'S views.

The editor of THE NAVY has received from a friend a letter strictly personal in form, but which raises such important service questions that it seems desirable to print it practically as received.

THE NAVY is published in the hope that it serves the good of the country and the good of the service; no bolstering up of fancied editorial dignity will be attempted when an error is discovered. The letter, which is given below, speaks for itself. It is true that, our Navy Department having so long followed the policy of awaiting developed examples from abroad before adopting the radical improvements in naval material, it is impossible that throughout the fleet "ship for ship ours equal the best." The writer of this note must admit that in using the phrase in question he adopted a ready-made expression, which we have seen much recently, without fully realizing what the literal interpretation of it would be.

While we are not prepared to admit that intelligent criticism of the *Dreadnought*—as intelligent as that which had been directed against the *North Dakotas*—would not reveal many serious defects, the point made by our correspondent that ship for ship ours do not equal the best when ships of corresponding date are compared, must be given great weight, and in another number we will attempt to give an unprejudiced comparison of our vessels with foreign vessels "ship for ship."

We do not pretend to give an authoritative answer to the problem in battle tactics suggested by our correspondent and would like to have discussion of this from any officers who may be interested. The academic answer (which might also be the practical one) would be that the evolution of going "ships right" or "ships left" and charging is exceedingly dangerous; for, while it may give an apparent temporary advantage, it throws the charging vessels into "line,"—a formation notoriously difficult to maintain,—the advantage that may be had at the outset is rapidly lost if the enemy draws ahead, and from the very beginning the enemy is given an ex-

cellent opportunity to flank the vessels advancing in line, causing them to blanket their own fire and putting them in a position where a return to the column formation would probably result in being capped.

NAVY YARD, NORFOLK, VA.,
November 22, 1908.

To the Editor of THE NAVY:

I have read with much interest the October issue of THE NAVY, and congratulate you upon the high level and good tone at which you are maintaining the paper.

However, I have a very honest criticism to make of one statement contained in the editorial entitled, "Are Our Battleships All Wrong?"—namely, "the fact remains that ship for ship ours equal the best."

I think this statement decidedly off. When our ships are compared with the English of the same date, I think we are fully five years behind the English in the more important naval developments. Our battleships, armored cruisers, and destroyers of the same date are not up to theirs. You practically acknowledge as much in the same editorial, where you point out our habit of waiting, and go on to say: "Have we not done this [wait] in many matters of importance,—the all-big-gun ship, the turbine engine, oil fuel, and drydock construction, to mention but a few of the more prominent examples?" Of course, it must naturally follow that if we do not adopt important improvements till long after our foreign colleagues, our ships cannot possibly "equal the best." Not a single one of the criticisms established against the *North Dakota* at the Newport Conference applies to the *Dreadnought*, which was launched and in commission before the *North Dakota* was laid down. We are just twelve years behind the English in adopting broad water line belt armor of uniform thickness. I think it is perfect tomy-rot to say, in the face of the facts, that our ships "equal the best." It sounds like puerile self-glorification.

I believe in being conservative, but I don't believe in "goo-goo" talk. I wish there were some way of your correcting that statement, but I don't suppose there is.

There is one thing I wish you would look into and give me your conclusions about.

The *Dreadnought* carries ten 12-inch guns; can fire eight on a broadside, six ahead, and six astern.

The *North Dakota* carries ten 12-inch guns; can fire ten on a broadside, four ahead, and four astern. The *North Dakota* is about 15% bigger than the *Dreadnought*.

Suppose you were in command of twelve *Dreadnoughts* and went into a broadside action with twelve *North Dakotas*, and found the enemy was delivering a 20% heavier fire than you, and, say, the target you offer is 10% less than the one he offers you. Why should you not go ships right or left and charge him with the intention of cutting through his line ("Damn the torpedoes!!")? Your end-on fire would be 60% of his broadside fire, and the target you would offer (cross section) would be about 20% of his. Your projectiles would strike his armor

normally; his would strike yours at too small an angle to penetrate. If he turned toward or away from you, your gun-fire would be 50% greater than his. You have a much better chance for effective use of torpedoes than he.

Question: In our great desire for broadside fire, placing five turrets on the middle line, have we not sacrificed too much end-on fire along with the other disadvantages brought out at the Newport Conference.

In my opinion if two fleets are about equally matched, in a long distance broadside engagement, the Admiral that is determined to win a decisive victory must charge through the enemy's line. The most noted naval commander the world has ever seen, though the ships of his day had practically all broadside fire and no end-on fire, broke through the enemy's line at the two great decisive battles of Aboukir and Trafalgar. The basic principle of his tactics was to get close to the enemy and concentrate the whole of his force on a portion of the fleet of his adversary. Personally I do not like the idea of all the foreign *Dreadnoughts* having 50% heavier fire than our *Dreadnoughts* when pointing toward their enemy.

Why does no foreign navy follow our lead of massing all the turrets on the middle line? If it is such a good thing, competent foreign naval tacticians ought to be able to see it.

Is this one of our leads that is to have the same fate as our superposed turrets, which nobody followed and which we finally discarded as bad?

R. L. M.

The following letter, although doing us the compliment of suggesting that we can more effectively discuss the question involved than can the writer of the letter, so clearly states the point at issue that we publish it as received, not only for its own value, but as bearing directly on the question, at issue in the letter above, of whether or not ship for ship ours equal the best.

November 26, 1908.

To the Editor of THE NAVY:

I appreciate the excellent work that you are doing for the service, and wish you even a more successful career for the future.

For some time past I have been thinking of sending you a communication for publication, and had even sketched out the letter in my mind. When your October issue came, I found you had anticipated part of what I had to say, in one of your editorials—namely, the tame following of our Department after English design in ship construction. Still, much more could be said on the subject, and as you can say it so much more effectively than I can, I wish to make the suggestion that you write an article somewhat on these lines: Point out the opportunity lost by the Board on Construction in the *Florida* and *Utah*, in not designing in these 20,000-ton vessels a much more powerful ship than the English

Dreadnought of 18,000 tons. If the English constructors could get 21 knots of speed and ten 12-inch guns in their 18,000-ton design, what have we done with our more than 2,000 tons extra? Should we not expect and demand something far better than this in the ships which we expect to obtain at the present session?

I know what excellent work THE NAVY did in advance of the Newport Conference, and how the public was made aware of defects in existing vessels. So it seems to me to be your duty to start in advance of possible appropriations for new ships, and demand something in advance of the *Florida* design. Surely the very acme of design cannot have been reached in these ships, and the Department can't say that nothing better in the three essentials of battery, speed, and protection have been reached.

Allow me to repeat, that as the only distinctively naval journal in the country, you owe it to the country to begin now and insist without ceasing that American genius (if I may use that much abused word) give us something better than contemporary English design.

This is no discussion of the improved arrangement of our turrets with increased broadside fire, but a discussion as to what we have done with our extra 2,000 tons in increasing that first essential of a battleship, "increased main gun power."

Please pardon this long letter. As one deeply interested in the service since my boyhood days, whose father was in the navy and who himself was once in the service, I feel that something should be done to force the responsible ones to measure fully up to what the country has a right to expect.

G. S.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

GERMAN NAVAL CORRESPONDENCE

BERLIN, November 10, 1908.

Since the German Nation finally made up its mind to indulge in that most expensive of all modern luxuries, a great navy, each month has brought home to the door of every taxpayer the unwelcome fact that a mighty fleet entails a correspondingly mighty outlay of shekels. For some half dozen years an attempt was made by the Admiralty to effect a compromise, the very conception of which conclusively demonstrated the German lack of practical naval experience. If other powers see fit to build battleships of 14,000 and 16,000 tons for the defence of their interests, said, in effect, the Wilhelmstrasse, we on our part can get equal value for less money by building battleships some 4,000 tons smaller, as these, manned by German sailors, ought to prove formidable antagonists to rival fighting ships manned by British and French seamen. This argument was delightful in theory, and implying, as it did, a handsome compliment to the national *amour propre*, it received unanimous popular endorsement. In case readers of THE NAVY express incredulity as to naïveté characterizing the policy of the German Admiralty up to 1900, I may mention that an argument similar to that I have reproduced was put forward in Admiral von

Tirpitz's speech to the Reichstag when the 1900 Navy Bill was laid before that assembly.

But not for long were the authorities permitted to live in this paradise of their own creation. The cult of the miniature battleship commenced to lose ground in the opening years of the present century, and was finally and utterly discredited by the deadly drama played to a finish in the Strait of Tsu Shima. Long ere that epoch-making engagement, however, the conviction had been steadily growing in expert circles that Germany had consistently backed the wrong horse in regard to her naval policy. Against the mass of incontrovertible evidence gathered from the Russo-Japanese war, which went to expose the complete impotency of diminutive, lightly-gunned battleships when brought face to face with opposing vessels of greater tonnage and heavier armament, and corresponding speed capabilities, it was impossible for the clever people in Berlin to avoid the prompt execution of a *volte face*. But how to do this without awakening public suspicion of their former costly errors? At this awkward juncture Providence, in the shape of Great Britain, stepped in and produced the *Dreadnought*, thus simultaneously placing in the hands of the German Government an excellent excuse for introducing a policy of bigger battleships and a diversion to cover mistakes of the past. The amending Navy

Act of 1906 was the result. Under its provisions the tonnage of German battleships sprang from 13,400 (*Deutschland* class) to 18,000 odd tons (*Nassau* class). This radical development applied equally to cruisers, though here an intermediate grade was unwittingly furnished by the *Blücher*, whose somewhat amusing history was related in the German correspondence of THE NAVY in the issue of July last.

Apart from the enormous increase in cost resultant upon the augmentation in size, the more powerful machinery, the larger coal consumption, etc., the armament of a *Nassau*—i. e., twelve 11-inch guns—is in itself a heavy item of expense. The latest 11-inch Krupp model costs approximately \$40,000; therefore the *Nassau's* main battery calls for an outlay of \$480,000, to which must be added the cost of a numerous array of rapid-firers for anti-torpedo work. So far so good; but now a fresh development has struck a cold chill to the official heart. It has suddenly been remembered that these costly guns must be frequently used in peace time, to maintain efficiency in shooting and for the training of new blood; and in connection with this annoying reflection comes the fact that every round fired from a modern heavy naval gun decreases the efficiency of the weapon. When the main armament of German battleships was composed of 9.4-inch guns, or of four 11-inch pieces at the most, the deterioration of the weapons caused by firing practice and prize shooting was not a serious financial consideration. But under present conditions the Admiralty is faced with the knowledge that either the *Nassau* must be allotted a minimum amount of target practice, in which case her standard of shooting would of necessity be so low as to counteract the advantage of her huge weight of metal, or the guns must be used frequently, and replaced every two or three years. It is a ticklish dilemma, more especially since the public is at present maintaining a very strict watch over all items of expenditure for the Navy.

This situation has naturally led to a revival of the discussion as to how big naval guns may be saved the wear and tear which consigns them to an untimely scrap-heap. Experiments prove that at the moment of firing the severest damage to the weapon is inflicted at the breach, where the delicate rifle spirals commence; and the extent of this damage uniformly decreases as the shock of discharge extends towards the muzzle, so that within one or two feet of the muzzle no material damage is visible. The theory held for several years by gunnery experts, namely, that the detrition of the metal of the

bore is primarily due to the rush of superheated gases which find vent through the numerous minute openings that are left when the projectile is rammed home, would therefore appear to have been conclusively established. The projectile, as every naval artilleryman knows, is never rammed home with sufficient energy to force the copper driving band deep enough into the rifling grooves to completely seal up the bore. At the moment of discharge the gases, accumulating under the terrific pressure of from fifteen to twenty tons to the square inch and heated to many thousand degrees, rush through these interstices and produce a frictional effect which renders the metal of the bore as susceptible to deterioration as if it were of lead, instead of extra hardened steel. The detrimental influence of the white-hot gases continues to exert itself on the bore metal until the projectile is impelled forward to such an extent that the copper driving band at its base practically seals up the bore, at which moment the gases cease to find outlet between the projectile and the bore, and are thus rendered innocuous. The latest Krupp models demonstrate the truth of this theory. In these high-muzzle velocity weapons the explosive pressure continues to within one or two feet of the muzzle, but the corrosive marks are invariably visible only in the immediate vicinity of the powder chamber.

If this hypothesis is correct, as there is good reason to assume, the remedy is obvious. More certain means of sealing up the breach of the gun when the projectile is driven home must be found, but the experts are averse to an enlargement of the driving band on the shell, in view of the "tailing-out" process that is prone to occur; that is to say, the copper of the driving band, if it projects too far out from the body of the projectile, is liable to become torn during the passage along the bore and emerge with a loose strip of metal flying, upon which the slightest wind currents would operate and thus render the projectile more or less erratic in its flight. Krupp, and indeed every other arsenal of importance, is seeking to obviate these difficulties, as it is recognized that until a suitable appliance is produced the most modern gun is a highly extravagant piece of ordnance. The diminution of the damage to the bore caused by the hot gases would prolong the life of a weapon by 50 per cent. Moreover, the considerable amount of propellant energy lost through interstices between the projectile and the bore would, if preserved, greatly increase muzzle velocity, and thereby confer greater penetrative properties on the weapon. It would be interesting to learn what steps are being taken in this direction by American ordnance manufacturers.

It is right and proper that every country should keep its questions of national defence without the pale of party politics, though as a matter of fact that eminently sane state of affairs does not exist in any country. Here in Europe, especially, naval and military preparations are indissolubly welded with the political situation, and thus a consistent and continuous pursuance of naval or military policy is well-nigh impossible. Germany is the sole maritime power which at present prepares a cut-and-dried program of naval development extending over half a score of years, and even in her case amendments or additions are constantly being made. The latest development in this direction—namely, the inordinate demands of the Flottenverein—has already been outlined in this correspondence. The six new *Invincible* cruisers and one additional *Dreadnought* battleship which the organization professes to deem essential for the protection of German interests are not likely to be forthcoming at the moment, especially as the public has been startled out of its proverbial complaisance by the publication on November 4 of the Government's new taxation proposals. Germany's national finances are undoubtedly in a deplorable muddle at this juncture; but in spite of this fact not a single voice is heard suggesting retrenchment at the expense of the navy. The "blue-water" mania has seized the Nation in a very virulent form; the teachings of Moltke are neglected for the teachings of Mahan.

In the brief space of ten years German naval expenditure has increased by 148 per cent., and shows symptoms of more abnormal inflation. The ancient excuse advanced by apologists for the rise of German sea-power,—that the country's increasing commercial interests demand corresponding protection,—speedily collapses upon investigation, as the following figures will show. In Great Britain it is the popular and sensible plan to consider outlay on the navy as premium paid for insurance against the risks of commerce destruction and invasion. We find that the naval "insurance premium" paid by Great Britain works out at \$12.60 per ton of merchant shipping; whereas Germany spends on naval armaments no less a sum than \$33.00 per ton of her merchant shipping. Furthermore, as against the 148 per cent. increase in German naval expenditure in a single decade, we find that British expenditure for similar purposes has only increased by 26 per cent. within the same period. Turning to coast defence, the same glaring disproportion is discovered. The entire coast line of the German Empire, including outlying possessions, has a total length of 4240

miles; the coast line of the British Empire is nearly 50,000 miles in length. In the face of such figures it is difficult to conceive the justice of German complaints that England is setting the pace in the race for sea supremacy. No intelligent German denies the feverish activity displayed by his Government to create an enormously powerful fleet, any more than he denies that this same fleet is destined to decide whether Britannia is to retain her grasp of Neptune's trident or to have it wrested from her by Sankt Michel.

The hurricane that is just now sweeping over the heads of the German Government, from the Emperor down to the humblest Foreign Office official, in consequence of the publication of the famous Imperial interview in the London *Daily Telegraph* shows no signs of abatement. Your correspondent is not concerned to discuss the major portion of this now famous article, but deems it advisable to call the attention of your readers to one striking passage of peculiar significance to the United States. His Imperial Majesty is reported to have explained the abnormal development of his navy on the basis that the situation in the East is pregnant with dangerous possibilities, and that it therefore behooved Germany to be ready when the hour for action arrived. This has been construed into a resurrection of the "Yellow Peril" bogey with which his Majesty has been obsessed since he ascended the throne. The utterance in question has awakened the liveliest indignation in Japan, against whom it was apparently directed. But the point I would recommend to your attention is this: The Emperor's words have given Japan the amplest excuse for augmenting her naval forces,—an excuse she is entitled to regard as perennial and substantial. If she seizes the opportunity to extend her naval shipbuilding program to a menacing degree, no one can say her nay, since she will be able to remind the world at large that she has been clearly threatened by Germany. What this may mean in the future to the United States is not difficult to imagine. That country, at least, has no reason to bless the somewhat tactless utterances of the German Emperor. Americans over here are reminding themselves that within the last eighteen months the Emperor confided to a French diplomat at the Kiel regatta his fears of America's growing power, using several times in the course of his conversation the phrase "the American Peril." These incidents should not be taken too seriously, but it is nevertheless as well to note them.

H. C. B.

THE UTAH BIDS AND AWARD

The contract for the 20,000-ton battleship *Utah* was awarded on November 12, three days after the opening of the bids at the Navy Department. Under the Naval Act, the *Utah*, like her sister ships, is to cost not more than \$6,000,000, exclusive of armor and armament. The estimated cost for the completed ship is about \$10,000,000.

The New York Shipbuilding Company, the lowest bidder, gets the contract, at its figure of \$3,946,000, for the construction of the hull and the installation of turbine engines and machinery. The speed called for is 20.75 knots per hour, and under the contract the firm is to deliver the vessel to the Government in thirty-two months.

The bids were opened in the office of the Secretary of the Navy on November 9, and were as follows:—

Class One—Hull and Turbine Machinery: Government Plans.

New York Shipbuilding Company, for a 20.75 knot vessel, delivery in 32 months, \$3,946,000.

Newport News Shipbuilding and Dry Dock Company, for a 20.75 knot vessel, delivery in 32 months, \$4,180,000.

William Cramp & Sons, for a 20.75 knot vessel, delivery in 35 months, \$4,330,000.

Class Two—Hull and Reciprocating Machinery: Government Plans.

Newport News Shipbuilding and Dry Dock Company, for a 20.75 knot vessel, delivery in 32 months, \$4,150,000.

William Cramp & Sons, for a 20.75 knot vessel, delivery in 35 months, \$4,270,000.

Class Three—Hull and Equipment, Government Plans: Machinery as Specified in Builder's Plans.

Fore River Shipbuilding Company, Curtis turbines; eight bids, four of which were for a 20.75 knot vessel, delivery in 32 months, the lowest being \$4,303,000; and four bids for a 21 knot vessel, the lowest bid being \$4,440,000.

Newport News Shipbuilding and Dry Dock Company, Parsons turbines, 20.75 knots speed, \$4,100,000.

Newport News Shipbuilding and Dry Dock Company, reciprocating engines and Mosher boilers, 20.75 knots speed, \$4,070,000.

William Cramp & Sons, Cramp-Zoelly turbine machinery, 21 knots speed, \$4,450,000.

These bids were referred by Secretary Metcalf to the Board on Construction of the Navy Department for consideration, and were returned to Acting Secretary Newberry on November 12, with a recommendation that the award be made to the lowest bidder, which action was taken.

Owing to the fact that the bidders were free to submit various alternative plans, a number of bids were received. There were straight bids on the battleship of standard type, with turbines or reciprocating engines, and bids that included original machinery designs by the bidders. The bids were unusually low, as was the case last year, when the same companies were competitors for the construction of the *Delaware* and *North Dakota*. Not only were the bids low, but the lowest offer made by the successful bidder was below that of last year. While the speed stipulated is a quarter of a knot less than that of the 21-knot *Delawares*, the contract time of building is shorter. The award of the contract for the *Delaware* was made on August 6, 1907, to the Newport News Shipbuilding Company, —\$3,987,000 for a 21-knot vessel, with reciprocating engines, to be delivered in 36 months. On the same day the award for the construction of the *North Dakota* was made to the Fore River Shipbuilding Company, —\$4,377,000 for a 21-knot vessel, fitted with Curtis turbines, to be built from the bidder's designs, in 34½ months.

Officials of the Department point out that the bid of the company which received the contract was better for the 20,000-ton *Utah* than the offers for most of the 16,000-ton ships already built. There are eight of these 16,000-ton vessels, and their contract prices for hulls and machinery, compared with that of the *Utah*, are as follows:—

Connecticut.....	18 knots	16,000 tons	\$4,212,000
Vermont.....	18 knots	16,000 tons	\$4,179,000
Kansas.....	18 knots	16,000 tons	\$4,165,000
Minnesota.....	18 knots	16,000 tons	\$4,110,000
Louisiana.....	18 knots	16,000 tons	\$3,990,000
New Hampshire.....	18 knots	16,000 tons	\$3,748,000
Michigan.....	18.5 knots	16,000 tons	\$3,585,000
South Carolina.....	18.5 knots	16,000 tons	\$3,540,000
Utah.....	20.75 knots	20,000 tons	\$3,946,000

SERVICE ITEMS

ARMOR FOR THE FLORIDA AND UTAH

The Navy Department, having in view the lowest responsible bidder, the best results, and the quickest delivery, has awarded contracts for armor for the battleships *Florida* and *Utah* in approximately equal shares to the Bethlehem, Carnegie, and Midvale steel companies,—the only concerns making armor in this country. The total amount of armor required is 9418 tons; the bulk of this, 8487 tons, is of what is known as Class A armor.

Each of the competing companies submitted a uniform bid of \$420 per ton for the Class A armor, on November 9, when armor bids were opened at the same time as proposals for the construction of the battleship *Utah*. This is the figure at which the contracts were awarded during the summer of 1907 for 7950 tons of Class A armor now being built for the battleships *Delaware* and *North Dakota*.

The lowest bidder on the Class B armor for the *Utah* and *Florida* was the Midvale Steel Company, whose offer of \$405 a ton was accepted for 456 tons, the remaining 11 tons of this class going to the Carnegie Steel Company, at \$415 a ton. The Bethlehem Steel Company submitted a bid of \$408 for Class B armor, which was not accepted. In 1907 the Class B armor was awarded to the three companies at a flat rate of \$400 a ton, which was also the figure at which the Class C and D armor was awarded in 1907 for the *Delaware* and *North Dakota*.

The lowest bid on Class C armor was that of the Carnegie Company, at \$455 a ton, against a bid of \$462 by the Midvale and \$470 by the Bethlehem Company. There are 390 tons of this class of armor required, and most of it—254 tons—was awarded to the Carnegie Company at its figure of \$455. This is \$55 more a ton than was paid for the same character of armor last year.

The Class D material consists of bolts for attaching armor plating to the vessels. Seventy-four tons will be required for the *Utah* and *Florida*. The lowest bidder, the Bethlehem Company, gets the contracts for 49 tons under Class D at \$508 a ton, while the other 25 tons go to the Midvale Company at \$512. The Carnegie Company's bid of \$600 a ton for Class D material was \$200 higher than the price at which the Bethlehem and Mid-

vale companies were in 1907 awarded the contracts for about 75 tons of the Class D armor for the *North Dakota* and *Delaware*.

The total amount of the contracts for the 9418 tons of armor comprised in the four classes ordered for the *Utah* and *Florida* is \$3,970,303. This has been distributed as follows:—

	Bethlehem Co.	Carnegie Co.	Midvale Co.
Class A.....	\$1,274,700	\$1,212,960	\$1,076,880
Class B.....		4,565	184,680
Class C.....	24,910	115,570	38,346
Class D.....	24,892		12,800
Total.....	\$1,324,502	\$1,333,095	\$1,312,706

While very little has been said about the improvements to be introduced in the *Utah* and *Florida* over the *Delaware* and *North Dakota*, a comparison of the quantities of armor to be used in the vessels, which are required by law to be "similar in all essential characteristics," furnishes an interesting field for speculation as to just how these ships are to differ in armor protection. In the first place, the contracts for the armor for the two *Utah* ships call for a total of 9418 tons, as against a total weight of 9376.22 tons of armor now being built under contract for the two *Delaware* ships. This represents a difference of 41.78 tons of armor and means that the *Utah* and *Florida* will each carry 20.89 tons more armor than the *Delaware* and *North Dakota*.

But this does not tell the whole story. The comparison of this year's contracts with those of 1907 shows that 536.66 tons more Class A armor is ordered for the two vessels authorized last spring than for their sisters now building, and that the *Utah* and *Florida* will each carry 268.33 tons more of this armor than either the *North Dakota* or *Delaware*. On the other hand, this year's two ships will carry 486.06 tons less armor of Class B than the other two, or 243.03 tons less on each ship. The natural inference from these comparative figures is that the main armor belt has been widened a little in the newer type of vessel. This armor is to be arranged in three belts, the chief one of which will be 11 inches thick, with armor an inch thinner in the belt immediately over the main armor, and a top belt of 5-inch armor running to

the main deck. Armor from 8 to 12 inches thick is to protect the turrets.

The comparative figures in detail in the armor awards for the two classes of ships are shown in the following table, based on official data:—

COMPARISON OF ARMOR PLATE CONTRACTS.

<i>Utah</i> and <i>Florida</i> (1906)			<i>Delaware</i> and <i>North Dakota</i> (1907)		
	Tons	Contract price Per ton		Tons	Contract price Per ton
CLASS A ARMOR					
Bethlehem	3035	\$420		3082.36	\$420
Carnegie	2888	\$420		2997.42	\$420
Midvale	2564	\$420		1870.56	\$420
Total	8487			7950.34	
CLASS B ARMOR					
Bethlehem	No award			294.32	\$400
Carnegie	11	\$415		431.65	\$400
Midvale	456	\$405		227.09	\$400
Total	467			953.06	
CLASS C ARMOR					
Bethlehem	53	\$470		146.07	\$400
Carnegie	254	\$455		109.00	\$400
Midvale	83	\$462		143.07	\$400
Total	390			398.14	
CLASS D ARMOR					
Bethlehem	49	\$508		56.59	\$400
Carnegie	No award			No award	
Midvale	25	\$512		18.09	\$400
Total	74			74.68	
Grand total	9418			9376.22	

Contract price of armor for *Delaware* and *North Dakota*—Class A, \$3,339,142.80; Classes B, C, and D, \$570,352.00. Total, \$3,909,494.80.

Contract price of armor for *Utah* and *Florida*—Class A, \$3,564,540; Classes B, C, and D, \$405,763. Total, \$3,970,303.

TURBINE TESTS FOR THE FUTURE

The installation of Parsons turbines in the *Utah*, to be built by the New York Shipbuilding Company, will give opportunity several years from now for a test between the three types of engines in 20,000-ton battleships of the same design in all essential particulars. The *Utah* will

have Parsons turbines, the *North Dakota* Curtis turbines, and the *Delaware* reciprocating engines. The efficiency of these three types of engines for scout cruisers are now being studied in the *Salem*, *Chester*, and *Birmingham*; three different types of turbines are to be studied in smaller vessels, as six of the ten new torpedo-boat destroyers for which contracts were awarded on September 19 have Parsons turbines, two have Curtis turbines, and the other two Zoelly turbines. The results obtained from these turbine-driven destroyers will be compared with those of destroyers that have reciprocating engines. As a result of these various comparisons, the Government should, within the next few years, secure valuable data.

THE PROPOSED DRY DOCK FOR GUANTANAMO

In his annual report, Rear Admiral Hollyday, Chief of the Bureau of Yards and Docks, again urges Congress to take up the work of completing the dry dock which is to be built at Guantanamo, Cuba, where we should have one of our most important naval bases. This dock would cost \$2,250,000 under the estimates; Congress has thus far granted several hundred thousand dollars, all of which was spent in starting the project several years ago. The cofferdam has been completed. Rear Admiral Hollyday says, in his report:—

"Unless appropriations are made for its continuation, the work already done will be lost. The importance of continuing the construction of the dry dock has been dealt with in the past annual reports. All other structures and improvements are of little value until this important feature of a ship-repair station is completed. The necessary shops and storehouses can be completed before the completion of the dry dock, if they are authorized by Congress at some future date."

For this reason an appropriation is not now asked for the other buildings and structures needed for the establishment of this base. The case with the dry dock is different. Several years must elapse after appropriation is made before a dock of sufficient size to accommodate modern battleships can be completed. Next in immediate importance to the work of the construction of the Guantanamo dry dock is the establishment of a potable water supply for that base. The Yateras River and Cusco Hills have been officially reported as sources for this supply, either of which would be regarded as satisfactory by the Department. An estimate of \$50,000 is submitted for the water system extension.

THE MARINE CORPS AND TRANSPORTS

The attention of the Navy Department has been invited by Major General George F. Elliott, commandant of the Marine Corps, to the "absolute necessity" for the conversion of a ship of the *Dixie* or *Panther* type into a transport for the exclusive use of the Marine Corps. He thinks that the ship should be commanded and manned by officers and enlisted men of the navy, but fitted and used exclusively as a transport. Records of the Department disclose the fact that Major General Elliott has been frequently called upon hurriedly to mobilize detachments for foreign service, and that in every case the men have been segregated, equipped, and ready for transportation well in advance of the time when the navy was able to secure for them the necessary transportation. It is contended that the transportation of expeditionary forces of marines on board battleships and other vessels of the navy is a serious drawback both to the ships and the marines, in view of the fact that most of the ships have their full complement of men on board and the surplus of marines received are in the way of the regular complement. Besides this, Major General Elliott contends, the accommodations for the marine detachments are inadequate and improper, and the men are so widely separated that the necessary organization upon landing is difficult: whereas if a ship of the *Dixie* type were set aside for transport duty alone, the men could be shipped at a moment's notice, they would all be comfortable, the organization could be perfected, and the tendency would be toward increased efficiency. In a report on the recent Panama expeditionary regiment, Lieutenant Colonel Eli K. Cole, of the Marine Corps, said:—

"The trip has, in my opinion, demonstrated the undesirability of using battleships for transports, not only on account of the cost, but of the discomforts to the men and difficulties in handling stores and the desirability of having transports on hand always to move expeditions of this sort at a moment's notice."

Commenting upon the matter, Major General Elliott says:—

"The enlisted men of the Marine Corps have endured more hardship during the last two years on naval vessels used as transports than they would in an ordinary campaign on shore of the same duration. This is not a complaint, but a statement of facts."

The recent expeditionary force to Panama consisted of nineteen officers and seven hundred and sixty-six enlisted

men of the Marine Corps. They sailed on the battleship *U.S.S. Hampshire* from New York on June 21, and on the battleship *Idaho* from Philadelphia on June 20, for Colon, Panama. This force was joined with the permanent battalion at Camp Elliott in the Canal Zone, for the purpose of insuring a peaceful election in Panama. That having been effected, the marines had to be brought back to the United States on battleships.

THE SOUTH AMERICAN CRUISE.

The first and second divisions of the Pacific armored cruiser fleet have started for a cruise along the coast of South America. These ships, starting the first of December, will run into midsummer weather along the coast of Chile.

The vessels in the first and second divisions are the armored cruisers *West Virginia*, *Colorado*, *Maryland*, *Pennsylvania*, *Tennessee*, *Washington*, *South Dakota*, and *California*. These, accompanied by the first and second flotillas of the Pacific torpedo fleet, have just completed a voyage to Samoa and Hawaii, after which they went to Magdalena Bay, arriving there October 22, for target practice. The itinerary of the eight cruisers, which are accompanied by the gunboat *Yorktown*, is as follows:—

	Arrive	Leave
Magdalena Bay, Mexico.....	—	Dec. 1
Panama	Dec. 12	Dec. 22
Talcahuano, Chile.....	Jan. 4	Jan. 14
Coquimbo, Chile.....	Jan. 17	Jan. 22
Callao, Peru.....	Jan. 27	Feb. 10
Panama	Feb. 22	Mar. 4

En route from Magdalena Bay to Panama one division of the first squadron will make a short visit to Amapala, Honduras, and the other division a similar visit to La Union, Salvador, where it is well to display the flag of this country occasionally with powerful vessels. The hospital ship *Relief*, now detached from the Atlantic battleship fleet and assigned to the Pacific fleet, has been ordered to report to Rear Admiral Swinburne, at Callao, by January 27, stopping en route at Guam, Honolulu, Acapulco, and Panama. She left Manila November 15 for Guam. The *Justin* left the Pacific Fleet at Magdalena Bay early in November to take on stores at San Francisco, for the vessels ordered on the voyage. The *Yorktown*, recently from Alaskan waters, on November 15 left San Francisco for target practice at Magdalena Bay.

The South American voyage will be a practice maneuver, held in South American waters.

The eight armored cruisers will make calls at two Chilean ports, but will not visit Valparaiso, because the Atlantic battleship fleet passed close to that city. The southernmost point of the armored cruiser voyage will be Talcahuana, Chile, near Concepcion, some distance south of Valparaiso. On the way back to Panama there will be a stop made at Coquimbo, another Chilean port, north of Valparaiso. The *Glacier*, recently at Manila, has been detached from the Atlantic Fleet and assigned to the Pacific Fleet for duty as a supply ship. She has been ordered to Australia for provisions; and thence to Talcahuana, Chile, via New Zealand, to report to Rear Admiral Swinburne. Thus, while provisions for the first half of this voyage went from San Francisco in the *Justin*, stores for the return trip are coming from the other side of the world.

After their return to Panama, the armored cruisers and the *Yorktown* will sail for northern ports on the Pacific Coast, for annual spring target practice and maneuvers. These armored cruisers, during the past year and a half, have had more experience at sea than any other group of vessels in the world, with the exception of the Atlantic battleship fleet. The *Tennessee* and *Washington*, in that period, visited France as a special service squadron, and, upon their return in 1907, were sent around South America to join Rear Admiral Dayton's armored cruiser squadron, consisting of the *West Virginia*, *Maryland*, *Colorado*, and *Pennsylvania*, which came back about the same time from the Philippine station. The more recently commissioned armored cruisers *South Dakota* and *California* were then attached to the other armored cruisers, so as to form two divisions of four ships each.

Since summer, these eight ships have all been together on their Hawaiian voyage, which ended in time for the target practice. The *Tennessee* and the *Washington* have had almost continuous cruising and very little navy yard work since leaving Newport for France on June 14, 1907. From that date until their return to Magdalena Bay from the Samoan voyage on October 22, 1908, these two cruisers traveled 33,345 miles. Their voyage along the South American coast and return to San Francisco will be approximately 10,000 miles, and will bring their record up to 43,000 nautical miles by next summer—an enviable record for any cruisers to establish inside of two years. It about equals the Atlantic battleship voyage around the world, the travels of which from December 16, 1907, to February 22, 1909, will aggregate 42,227 miles,

exclusive of the side trip from San Francisco to Puget Sound ports earlier in the year.

THE HOSPITAL SHIPS *SOLACE* AND *RELIEF*

During the war between the United States and Spain—ten years ago—an ambulance ship, the *Solace*, was purchased by the navy and fitted out under the requirements of the Geneva Red Cross Convention. She was in constant service, bringing sick and wounded of the navy to northern naval hospitals, and, when practicable, sick and wounded of the army to army hospitals. This vessel marked a departure in the care of patients in naval warfare. With comfortable accommodations for two hundred patients, and fitted with all the appliances for modern antiseptic surgery, a steam disinfecting apparatus, an ice machine, a steam-laundry plant, and cold-storage rooms, she afforded every convenience of the modern hospital. All the wounded from the Spanish vessels in the battle of July 3, 1898, were taken by the *Solace* to the naval hospital at Norfolk, Virginia.

Since the close of the war the *Solace* has been rendering various kinds of service to the navy, and more recently has been serving, under the command of Commander William A. Gill, as parent ship for the flotillas of torpedo boats that went with the armored cruisers on their Samoan voyage. Her duty was similar to that of the *Vankee*, under Commander Charles C. Marsh, as parent for torpedo-boat destroyers on the Atlantic Coast. The *Rainbow*, which has been the flagship of Rear Admiral Giles B. Harber of the Philippine squadron of the Pacific Fleet, at Manila, is to take the place of the *Solace* as parent ship for the Pacific Coast torpedo craft, and will join them in time for the spring drills and maneuvers; while the *Charleston*, a large protected cruiser, replaces the *Rainbow* as flagship. The decision has now been reached to have the *Solace* converted to her former use as a hospital ship, and she will be brought around from the Pacific Coast for attachment to the Atlantic battleship fleet when the latter arrives at Hampton Roads next February. Orders have been issued to the *Solace* to go to the Mare Island Navy Yard, San Francisco, for fitting up for hospital-ship uses, and she will immediately afterward sail for Hampton Roads via Magellan Strait.

There will now be two hospital ships in the navy—one attached to the Pacific Fleet and one to the Atlantic. The *Relief*—fitted out a year ago—is now to be attached to the Pacific armored cruiser fleet, while the *Solace* takes her place as hospital ship for the Atlantic Fleet. The substitution of the *Solace* for the *Relief* as hospital ship

for the sixteen battleships is because the latter vessel has shown herself too slow to handily accompany Rear Admiral Sperry's ships from Manila via Suez. Upon her return to California waters from the South American cruise of the armored cruisers, the *Relief* will be sent to the Bremerton Navy Yard for repairs.

Orders for the *Relief* to be commissioned as a naval auxiliary (hospital ship) with a naval surgeon in command and manned by merchant officers and crew were issued January 10, 1908, and the vessel was placed in service February 6, 1908. She left Mare Island, California, on March 22, 1908, for San Francisco, and two days later started for Magdalena Bay, to join the Atlantic battleship fleet, then engaged in annual spring target practice. Reaching Magdalena Bay March 27, she returned to San Francisco the early part of April, and a week later went to San Pablo, California, to join the fleet once more. She went back to San Francisco and steamed out to meet the fleet a third time at Santa Cruz. On May 18 the *Relief* sailed with the fleet from San Francisco for Puget Sound ports. After her return to San Francisco she was got ready for the fleet's journey to Manila. She left San Francisco July 3, 1908, four days ahead of the battleship fleet, and arrived at Honolulu July 11, five days ahead. On July 22 she left Honolulu for Auckland with the fleet, but steamed out of her course for a visit to Tutuila, Samoa, on August 2, and reached Auckland on August 12, three days after the battleships. She left that port with them on August 15 for Sydney, Australia, reach-

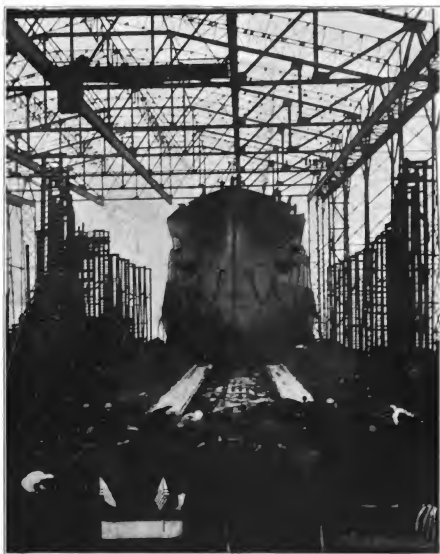
ing Sydney the same day as the fleet. When the battleships left Sydney for Melbourne, on August 28, the *Relief* again started with the fleet, but her destination this time was Manila. She was accompanied by the *Yaknton*, and spent three days at Thursday Island (September 6-8), arriving at Cavite September 18. The *Relief* did not participate in the battleship voyage to Japan, but remained behind at Manila. She was sent to the naval station at Olongapo just before her departure, about the middle of November, for Chile, to join the Pacific Fleet.

The *Relief*, like the *Solace*, was a hospital ship in the war with Spain. Three years ago \$50,000 was spent on the *Relief*, with the expectation that she would be immediately commissioned, but she remained idle at the Mare Island Navy Yard until placed in service last February. In his last annual report Surgeon General Rixey recommended an appropriation of \$3,000,000 for the construction of two model hospital ships, one for the Atlantic coast, the other for the Pacific, each to accommodate 300 patients. Plans for these ships have been in existence for more than a year, and were submitted to the House Naval Committee last winter, when Surgeon General Rixey, at the Congressional naval hearings, advocated such ships. No Congressional action was taken upon the recommendations. The Surgeon General said then that the *Relief* would not have the proper speed to accompany the fleet, and this has been shown by the fact that the vessel is now detached on account of being too slow for the fleet.

LAUNCHING OF THE NORTH DAKOTA

The first-class battleship *North Dakota*, one of the largest in the world, which will displace 20,000 tons and mount a main battery of ten 12-inch guns, was successfully launched from the Fore River Shipbuilding Company's yards at Quincy, Massachusetts, at 12.27 o'clock on Tuesday, November 10. State officials of North Dakota and Massachusetts, public officials of Quincy, and officers of the American and foreign navies

were present. North Dakota was represented by a number of prominent men from the State. Miss Mary Benton broke a bottle of champagne over the bow of the battleship as it started down the ways. Immediately after the launching, luncheon was served in the mold loft. Speeches were made by Governor John Burke of North Dakota, President Bowles of the Fore River Company, Mayor Shea of Quincy, and others.



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THE WORLD'S LARGEST BATTLESHIP

The North Dakota leaving the ways at Quincy, Massachusetts, November 10, 1908



THE NORTH DAKOTA BEFORE LAUNCHING



THE NORTH DAKOTA LAUNCHED



CHRISTENING THE NORTH DAKOTA



THE STERN, SHOWING THE PROPELLERS

FOREIGN NAVIES

GREAT BRITAIN

THE COLLINGWOOD LAUNCHED

The first-class battleship *Collingwood*—second of the *St. Vincent* class and sixth of the battleships of the *Dreadnought* type christened by Great Britain—was successfully launched at the Government dockyard at Devonport, England, on Saturday, November 7. Her sponsor was Mrs. H. H. Asquith, wife of the British Prime Minister, who gave the signal which set the launching machinery in motion. The *Collingwood* has a designed displacement of 10,250 tons, and is therefore 650 tons heavier than the three battleships of the 1906 building

program—the *Bellerophon*, *Téméraire*, and *Superb*. The *St. Vincents* differ only in detail from the *Bellerophons*, just as the latter vary in detail from the original type-ship. But these details are important and make the *Collingwood* and the other two vessels of her group more powerful than the original single-caliber vessel which Great Britain laid down in October, 1905, and therefore the most formidable vessels yet laid down by the British Navy. Like the *St. Vincent*, the *Collingwood* is to mount ten 12-inch guns arranged in pairs in five turrets, so as to give a broadside fire of eight guns and a fore and aft fire of six guns. Her big guns are of the 50-caliber length, and her torpedo-defence batteries also have a higher

muzzle energy and velocity than those of the *Dreadnought* or the *Bellerophons*. The hull of the *Collingwood* was one of the heaviest dead weights that ever left a British launching slip. It is estimated that it displaced 8300 tons of water, or nearly half of the total displacement of the vessel.

BRITISH RATE OF BUILDING

The *Collingwood* was on the building stocks less than ten months; but, quickly as the work on her was done, more time elapsed between her keel-laying and her launching than in the case of any other of the new single-caliber battleships of the ten-big-gun type. Only 4 months 8 days elapsed between keel-laying and launching of the *Dreadnought*, 7 months 24 days in the case of the *Bellerophon*, 7 months 23 days for the *Téméraire*, 9 months 1 day for the *Superb*, 8 months 11 days for the *St. Vincent*, and, to be exact, 9 months 4 days for the *Collingwood*. While the time from keel-laying to launching for the *Dreadnought* was less than half that for the *Collingwood*, it must be remembered that 1350 tons more material had to be worked into the latter vessel, and that she was sent into the water at Devonport in exceedingly heavy condition; also that the *Dreadnought*, as an experimental type-vessel, was hurried as much as possible. At the rate of progress that has been made with these six ships, the seventh battleship of this type,—the *Vanguard*,—which was begun last April, should take the water not later than next February, by which time Great Britain will have the battleship authorized during the winter of 1907-08 upon the stocks.

The nearest approach to these shipbuilding records by any power competing with Great Britain is that of 10 months and 25 days from the keel-laying to launching of the first ten-big-gun ship for the American Navy—the *North Dakota*. Germany is increasing her rate of building, having already put three new battleships into the water in 1908, and is making every effort to launch another before the end of the year. The Teutonic builders have not yet been able, however, to shorten to less than ten months the time from keel-laying to launching in the construction of their new battleships. The *Nassau* took about ten months, but her sister, the *Westfalen*, took nearly a year and a quarter, and the *Rheinland* took a month longer than that.

THE FOUDROYANT

The British Parliament authorized only one battleship to be built under the Naval Budget granted last winter in the 1908 shipbuilding program. This vessel has not

yet been definitely named, but is provisionally carried on the lists as the *Foudroyant*, though for a while it was thought she would be called the *Auson*. She will be laid down about January 1, 1909, in the Government dockyard at Portsmouth, England, on the building slip which the *St. Vincent* left for her launching in September. The cost of the vessel will be nearly two million pounds sterling. She is the eighth of the ten-big-gun type laid down in England, and will be an improvement over the *St. Vincent* class.

While nothing definite is obtainable about the general characteristics of this new battleship, it is anticipated that there will be some rather interesting innovations introduced. It would not be at all surprising to find her carrying twelve heavy guns in her main battery instead of ten, and 13.5-inch guns instead of 12-inch weapons. There can no longer be denial of the fact that the Beardmore firm is building 13.5-inch ordnance, and that the British Admiralty is especially interested in the undertaking. If they are intended for the *Foudroyant*, that vessel will probably be hastened, as was the *Dreadnought*, for trial purposes, so that the 13.5-inch gun idea can be tried out before the new battleships to be authorized this winter are designed.

The Admiralty was rather severely criticized in a number of professional and service circles last winter because only one new battleship was authorized for the British Navy, while Germany was known to have a permanent building policy calling for three battleships annually for several years to come. Even then it was suggested that the naval powers at Whitehall, who were rather complacent, despite all of the criticism, had something up their sleeve, and this is now believed to be the development in the *Foudroyant* of a type-ship. In 1905 the *Dreadnought* was the only battleship authorized by the British Government, but this was followed by the immediate authorization of the three *Bellerophons* in 1906 and the three *St. Vincents* in 1907.

DOCKS FOR LARGE SHIPS

Preparations for starting the new dock at Portsmouth have been commenced, and before the end of the year there will be over a thousand men engaged for the work, for which a great deal of the contractors' plant has already arrived at this British dockyard. After the first of the year the work will be pushed vigorously, but until then very little will be done except in a preparatory way.

There is also naval interest in the announcement made on November 10, that the White Star Line negotiations, which have been in progress for some time past for the

construction of an immense drydock at Southampton, England, were concluded on that date, and that the new dock is to be capable of accommodating at any tide the two new White Star merchant marine ships — the *Olympic* and *Titanic* — or any other vessel up to 1000 feet in length. These vessels are to be the largest in the world, and have been taken in hand for construction at Belfast. The London and Southwestern Railway Company, owner of the docks at Southampton, is to apply to Parliament for power to construct the new dock, which is to cover an area of about 16 acres, and to be 400 feet wide, with a depth of 40 feet at mean low water. There are to be five quays, two of them 1650 feet long, and the others 640, 515, and 495 feet long, respectively. From a naval and strategic viewpoint this project is important, wholly aside from its commercial value, because the docks may be used by naval vessels of all navies in time of peace, and those of England, in particular, during a war.

TURBINE TORPEDO BOAT No. 31 LAUNCHED

The new turbine torpedo boat, No. 31, was launched on Saturday, October 10, at the Woolston Works of Messrs. John I. Thornycroft & Co., at Southampton, England. She was engaged throughout by her builders, and is generally on the same lines as the previous vessels built by Great Britain which were originally known as "coastal" destroyers. Her displacement is approximately 278 tons, or about 60 tons more than the first boats of this class, while the horsepower is increased to approximately 250. The speed is 26 knots; the armament to be carried will consist of two 12-pounder guns and two 18-inch torpedo tubes. Torpedo boat No. 29 of the "coastal" type just completed at the works at Greenock, England, began her preliminary full-speed trials the middle of October. No. 31 will proceed on its trials shortly, and the sister vessel, No. 32, will soon be launched by the Thornycrofts.

THE INVINCIBLE AND INFLEXIBLE COMMISSIONED

The British battleship-cruiser *Invincible* at her full-power trial on November 7 averaged 28 knots over a period of eight hours. At her seven-tenths power trial at Plymouth, England, on November 4, she made 25 knots. This vessel is to be commissioned for service in the Nore Division of the Home Fleet. Her sister, the *Inflexible*, was commissioned in the same Division of that fleet on October 20, taking the place of the battleship *Jupiter*, which has now joined the Devonport Division. England has three of these powerful armored cruisers in commission, including the *Indomitable*. Each vessel car-

ries eight 12-inch guns, each of these guns weighing 58 ton and firing an 850-pound projectile.

GERMANY

PROPOSED NAVAL INCREASE

News comes from Berlin of a contemplated large expansion in the German naval shipbuilding program. It is said that the Reichstag will introduce at an early date a new German Navy Bill embracing the most recent program of the German Navy League, which would call for the immediate construction of six large armored cruisers of the *Blücher* type, similar to the British *Indomitable*s.

This announcement is important, being indicative of the vigor of German naval development under energetic naval authorities who are strongly supported by the German Navy League, which has done more than any other single agency in the Empire toward the creation of a healthy sentiment among Germans in favor of increased naval strength. The German Reichstag has already adopted a "permanent" building policy that has compelled the other naval powers, especially Great Britain, to take anxious note of Teutonic naval ambitions.

THE GERMAN NAVY LEAGUE'S NEW PROGRAM

The new program thus formulated by the German Navy League is as follows:—

First. The immediate construction of six large armored cruisers of the *Blücher* class, to replace six protected cruisers. Under the present act the six protected cruisers would not be replaced until the years 1912-17.

Second. The increase of the High Sea Fleet from sixteen to seventeen.

Third. The provision of half crews for the seventeen battleships of the German reserve fleet, instead of for only six battleships of that fleet, as at present.

The cost of the six fast and powerful vessels of the type named would be about sixty million dollars; but the argument made by the German Navy League is that, since the money has to be borrowed to strengthen the German fleet, it would be just as easy to float a large loan as a small one. The demands of the League are now all the more important, because the present head of that organization is Admiral von Köster, who replaced General Keim last spring to prevent a split in the League. Admiral

von Köster is in the closest possible touch with the ruling naval authorities in Germany. He is one of the confidential advisers of the German Admiralty, and until two years ago was the officer chosen to command the German fleet in case of war. He is in full accord with the views of the Imperial Admiralty, and under this able new executive the future propaganda of the League will be to educate the public regarding the Government's own plans.

COMPLETION OF THE "DOCKSHIP" *VULCAN*

Almost two years ago THE NAVY spoke of the new German dockship which was being constructed for the Imperial Navy by the Howaldt Works at Kiel, under plans drawn by the Imperial Naval Constructor, Ph. von Klitzing. This vessel, the *Vulcan*, the only one of its kind in the world, has now been completed and placed in commission. It is to be used in docking submarines by lifting them out of the water, and is provided with cranes capable of lifting a weight of 500 tons out of deep water. Submarines requiring assistance can be easily raised by the tender and repaired on board.

The vessel itself consists primarily of two hulls, resembling ships linked together fore and aft above the water line by steel girders made up of angles and plates. This linking, or joining together, is done in such a manner that a torpedo boat or submarine riding at the surface can steam between the hulls. When in this position, tackles and crane-hooks can be lowered from the dockship and the little vessel can be lifted out of the water and docked. The center of the dockship is free, and the submarine or torpedo boat may be raised as far out of the water as desired. From both of the inner sides of the dockship beams are swung under the smaller vessel, so as to form a platform on which she may rest. The beams are fastened by hinges to the inner side of the dockship, that is to say, they are fastened to the inner side of one of the hulls and are pulled up against the inner side of the other hull as far as it is advisable to raise the docked boat. These beams play no actual part in the raising of a vessel, that action being performed wholly by the cranes and tackles on the dockship. The hoisting apparatus is arranged on two double portals, or bridges, built up of lattice girders, the bases of which girders rest on the decks of the two hulls. These girders also serve as a rigid connection between the two hulls. The means of propulsion of the vessel are interesting, for neither reciprocating engines nor turbines, but electric motors are employed for driving the two propeller shafts. Current is delivered to the motors by two independent turbine

generator sets. If the vessel is to steam slowly one generator set only is run. All the switches and controlling mechanism for the entire machinery are operated from the bridge, so that no communication between the commanding officer and the engine room is necessary. Steam is generated by four Mählhorn water tube boilers. One of the purposes for which the vessel is destined is to serve in salvage operations for sunken submarines, the necessity for such a salvage ship having become more and more apparent as the development of submarine practice has progressed. The trials of the ship have been so satisfactory that a second and larger ship of the same type is under construction for the other German naval bases.

FRANCE

THE NEW MINISTER OF MARINE

M. Alfred Picard, who is an eminent scientist and has the reputation of an experienced administrator, has been chosen as the new French Minister of Marine, in place of M. Gaston Thomson, who resigned his post on October 19, as a result of a vote in the French Chamber of Deputies deploring the negligence in the French naval department as indicated by the *Jina* and subsequent accidents. M. Thomson was appointed Minister of Marine in Premier Rouvier's Cabinet, January 23, 1905, and was reappointed to that office in the Sarrien Cabinet, on March 13, 1906. When M. Clemenceau became Premier, on October 23, 1906, M. Thomson continued to hold his portfolio.

His successor, M. Picard, was born at Strassburg, in December, 1844, and is now in his sixty-fourth year. After experiences in the East, he became engaged in the Suez Canal work, and in 1870 was attached to the defensive works at Metz, but left that fortress to join the army of the Loire. In 1880 he was the Chief of the Cabinet in the Ministry of Public Works, and afterwards Councillor of State. It was M. Picard who organized the Paris Exposition in 1889. While he is an eminent engineer, it has been as an administrator that his success has been won, and it is efficient administration and keen naval foresight that the French Navy needs. The decadence of that navy started with the dilettante methods of former Minister of Marine Pelletan; and, although M. Thomson resigned under fire, much of his trouble with French naval administration was inherited from his predecessor. M. Thomson loves the French Navy, wishes to see it great and strong, and was ready to lay down his portfolio in order to promote the granting of the necessary credits for its increase. He had the misfortune to have his Min-

istry shadowed by an unusual number of disasters, including the great misfortune to the *Jéna*.

TURBINES AND OIL FUEL FOR DESTROYERS

The five new French torpedo-boat destroyers of 750 tons displacement recently ordered from various companies are to be provided with turbines and boilers with oil fuel. The announcement is made that they will undergo their trials at the port of Lorient, France, instead of at Rochefort, where the boats heretofore built on the Gironde have usually been tried. Lorient is henceforth to take up those duties. These five new destroyers are:—

The *Boutefeu*, now building by Messrs. Dyle & Cailan at Bordeaux.

The *Cimetière* and *Dague*, now building by the Chantiers de la Gironde.

The *Fourche* and *Faulx*, now building at the yard of Messrs. La Brosse & Fouche at Nantes.

The *Fourche* and the *Faulx* are to have turbines of the Rateau type, with 600 revolutions per minute, giving 31 knots speed. These destroyers will have Du Temple boilers, stoked with petroleum.

SPEED OF THE PATRIE CLASS

At a recent speed trial of three battleships of the *Patrie* class and two other vessels of the French Mediterranean Fleet, the following average speed results were obtained: *Patrie*, 18 knots; *Démocratie*, 17.75 knots; *République*, 17.25 knots; *Suffren*, 14 knots, and the *Bouvet*, 12 knots. The first three of these vessels each displaces 14,865 tons and is designed for 18 knots speed. The course was from Ajaccio on the Corsican coast to the naval port of Toulon, a distance of 160 miles, and the *Patrie* and *Démocratie* did very well; while the conspicuous failure of the *Suffren* (12,728 tons) and the *Bouvet* (12,205 tons) is remarkable and suggests that they may be in a bad state of repair. On her trials the *Patrie* originally made as high an average as 19.12 knots, and the *République* as much as 19.15 knots.

JAPAN

ARMAMENT OF THE *AKI* AND *SATSUMA*

The interesting announcement comes from Tokio that the proposed armament of the new battleships *Aki* and *Satsuma* has undergone considerable modification and is now to be arranged as follows:—

Main armament:—Ten 12-inch breech-loading guns of 50-caliber length.

Secondary armament:—Twenty-four quick-firers, probably ten 6-inch and fourteen 4.7-inch.

The *Aki* was launched at Kure dockyard on April 15, 1907, and the *Satsuma* at Yokosuka November 15, 1906. Their armament, as originally announced and as described in all foreign publications, was not to be of the all-big-gun single-caliber variety, but, on the contrary, four 12-inch guns and twelve 10-inch guns. If these vessels are to carry ten 12-inch guns in their main batteries, as now seems certain, they will be in line with the latest ships of the British and other navies.

The *Satsuma* has been in the water two years and her sister a year and a half, and if the Japanese Government has only recently decided to give them a new character of armament their completion would be delayed, since it requires some time to build and install the new batteries. It was the original plan to have these ships finished by the end of the present year. Several months ago it was reported from Japan that the 11½-inch armor plating was ready to be placed in position on the *Aki*, and that the *Satsuma* was about to receive her boilers and should be ready for sea early next year. If this is true, and if the announcement is also correct that these vessels are to mount ten 12-inch guns, instead of four 12-inch, then it would seem that the latter decision is not recent, because these guns should be nearly ready now if the *Satsuma* is to be commissioned in the spring. Both of these ships are contemporaries of the British *Dreadnought*. Like that vessel, they were authorized in 1905, the *Satsuma* being laid down May 15, 1905, nearly five months ahead of the *Dreadnought*, whose keel was not laid until October 5, 1905. When the keel of the *Satsuma* was laid, she was therefore the largest battleship projected in the world, her displacement of 19,200 tons being 1300 tons greater than that of the *Dreadnought*. The American *Delawares* had not then been authorized, because it was not until the Naval Act of 1906 that the Navy Department was directed to submit plans for the *Delaware*, not until the Naval Act of 1907 that the *North Dakota* was authorized, and not until the middle of last winter that these vessels were laid down in American yards. Hence the Japanese were pioneers in the authorization of battleships of greater than 19,000 tons displacement, although it seems that a long time is being occupied in getting the *Aki* and *Satsuma* into commission. This delay was certainly not attributable to slowness in the construction of

the hull, because a year and five months elapsed between keel-laying and launching of the *Satsuma* and about a year and four months in the case of the *Aki*. Notwithstanding that the *Dreadnought* was not laid down until after the *Satsuma*, the latter vessel is not completed while the former has been finished, and, in commission, two full years. From this it would appear that the delay with these two vessels has been due to a discussion of the question of the armament the vessels should carry, resulting in the decision to make both ships *Dreadnoughts* in armament as well as displacement. This is the same difficulty the French have faced. They, too, have lost time in battleship construction through discussions of armament after vessels have been actually laid down. Under the original Japanese decision, the *Aki* class were to have their four 12-inch guns placed in pairs in barbettes, one forward and one aft, and the 10-inch guns were to be fully protected. The Japanese guard their plans rather carefully and it is not yet known how the ten 12-inch guns will be mounted. There is no doubt that they will be arranged in pairs in five turrets, but it will be interesting to learn whether Japanese ordnance officers have recommended an arrangement similar to that of all of the British *Dreadnought* class yet launched or whether they will follow the American method of arranging the five turrets along the center line of the ship. Still another thing the ordnance experts of other navies will anticipate with interest will be whether any single pair of these Japanese guns will be so mounted as to fire over an adjacent turret. This principle is embodied in the American, German, and Brazilian single-caliber ships that are now building, but has been avoided in the British *Dreadnoughts*. The latter do not look with favor upon the firing of high-powered 12-inch guns in one turret directly across the top of another turret.

AUSTRO-HUNGARY

ERZHERZOG FRANZ FERDINAND LAUNCHED

The new first-class Austro-Hungarian battleship *Erzherzog Franz Ferdinand* was successfully launched on September 30 at the Stabilimento Tecnico, at Trieste, in the presence of several members of the Imperial family. During a severe storm on the night of October 22 the ship was driven ashore at Isola, both her cables parting. Assistance was despatched the following night from Isola and Trieste and the vessel was refloated and taken to the

Austrian naval base at Pola, fifty-five miles from Trieste, for docking. Although the vessel had only recently been launched, she had not yet been taken over by the Austro-Hungarian naval authorities.

Austro-Hungary at present has only three effective battleships in commission,—the *Erzherzog Karl*, *Erzherzog Friedrich*, and *Erzherzog Ferdinand Max*. Each displaces 10,600 tons and carries a main armament of four 9.4-inch, four 7.4-inch, and eight 7.4-inch guns, with a speed of from 19.25 to 20.57 knots an hour. They are new vessels, the first two having been completed in 1906 and the last in 1907. In order to bring her effective fighting force up to six first-class battleships, the Austrian government early last year projected three more battleships of 14,500 tons displacement each; the vessel just launched under the name of the *Erzherzog Franz Ferdinand* is the first of this new series.

Until quite recently these ships were provisionally designated as *A*, *B*, and *C*, but since the vessels have been put in hand they have received the names of *Erzherzog Franz Ferdinand*, *Radetzky*, and *Zrinyi*. When this decision was reached the old frigate *Radetzky*, which is a gunnery vessel, was renamed *Asria*, and the old mining vessel *Zrinyi* is now the *Delta*. These vessels have been called the "new Austrian *Dreadnoughts*," though erroneously, inasmuch as they are not single-caliber vessels and not as powerfully armed as the American *Connecticuts* or the British *Duncans*.

On a displacement of 14,500 tons, these three vessels of the *Radetzky* class will mount four powerful 12-inch guns, and eight 9.4-inch guns of moderate power and length and not of the latest available model. Each vessel will carry twenty smaller 10-centimeter quick-firing guns and two submarine lance torpedoes. The engines are to develop 20 knots speed and work up to 24,000 horsepower. One of the results of the lessons of the war between Russia and Japan is an arrangement by which the equilibrium of a vessel is to be preserved whenever an explosion or a collision fills a water-tight compartment. In each of these vessels there is an arrangement by which, when one compartment fills with water, the corresponding compartment on the other side of the vessel is simultaneously filled. Though by this arrangement the vessel will be brought lower in the water, it will be saved from keeling over and exposing vulnerable parts to the enemy's fire. Two rudders are fitted to each of these new vessels; and in the ammunition magazines cooling apparatus is installed, to prevent the temperature from ever rising above 76 degrees Fahrenheit.

OFFICIAL SYNOPSIS OF THE NEWPORT CONFERENCE

The synopsis of the proceedings and conclusions of the Newport Conference, together with Commander Key's letter, the order directing the Conference, and the letter written late in August by Assistant Secretary Newberry, forwarding the proceedings to President Roosevelt at Oyster Bay, are all comprised in General Order No. 78, the complete text of which is as follows:—

GENERAL ORDER }
No. 78.

NAVY DEPARTMENT,
WASHINGTON, November 18, 1908.

The following report of the proceedings of a Conference held at the Naval War College, Newport, R. I., to consider a certain letter of Commander A. L. Key, U. S. Navy, and the plans of present and future designs of battleships, is published for the information of the naval service.

TRUMAN H. NEWBERRY,
Acting Secretary.

Confidential.]

AUGUST 26, 1908.

MY DEAR MR. PRESIDENT:—

There is forwarded herewith the record of the proceedings of a Conference ordered by the Department under date of July 2, 1908, by your direction, to report on the designs of the *North Dakota* and *Delaware*, and to make recommendations as to the military characteristics which should be required in battleships to be built in the immediate future. These proceedings also include the action of the Conference upon the questions raised in your telegram to the Department of August 15, 1908, that the Newport Conference submit—

" . . . As a whole, their recommendations concerning the *Utah* and *Florida*, these recommendations covering plans to remove all defects found in the *North Dakota* and *Delaware* without regard to delay and without regard to any existing plans or arrangements relative to the *Utah* and *Florida*, their armor or armament; also to state how much delay there will be if the recommendations for the changes are adopted; also submit recommendations for these two ships that will involve practically no delay in their plans. I desire to have the whole matter before me for my judgment."

The method of procedure adopted by the Conference, the reports of subcommittees, the reconciling committee, and the action of the full Conference on each proposition submitted by the reconciling committee, and amendments substituted therefor, is fully set forth in the proceedings, and in view of the definite conclusions subsequently reached, detail comment is needless.

After a careful consideration of the plans of the *North Dakota* and *Delaware*, and the criticisms of the designs of those vessels

submitted by Commander A. L. Key, United States Navy, in his letter dated June 9, 1908, the only changes recommended were:—

"(1) That splinter-proof armor should be placed around the uptakes and ventilator supply pipes within the citadel and between the upper limit of 8-inch armor and the upper deck of the *North Dakota*.

"(2) That means of refrigerating be applied to all magazines of the *North Dakota* and *Delaware*.

"(3) That two fire-control masts of the same general type as that tried on board the *Florida* be installed on the *Delaware* and *North Dakota*."

The Conference made the following general recommendations, which were necessarily qualified:—

"(1) That the ventilation pipes and cowls on the *North Dakota* and *Delaware* be shortened to the lowest practicable limit, and that the funnels of the *North Dakota* and *Delaware* be shortened as much as practicable, having in view the necessities of fire control and the habitability of the bridges.

"(2) That the location of searchlights on the *North Dakota* and *Delaware* should conform, as far as possible, to that recommended in the report of the recent Board on Torpedo Defense.

"(3) That necessary bridge facilities be supplied for navigational purposes in narrow water, provided such bridges are not installed above the conning tower.

"(4) That the torpedo-control station on the *North Dakota* and *Delaware* be adapted for sighting at a target materially abaft the beam or that a second torpedo-control station be provided abaft the after smoke pipe."

Referring to the foregoing recommendations of the Conference, it should be noted that the addition of splinter bulkheads involves a very considerable additional weight to the upper part of the vessel and decreases the metacentric height. In view of the action of the Conference, however, the Department will, subject to your approval, make provision for the addition of the above-recommended splinter bulkheads on the *North Dakota* and *Delaware*.

With regard to the refrigeration of all magazines, recommended by the Conference, it may be stated that this subject has already been given very careful consideration by the Department, and suitable steps will be taken to provide such refrigeration for the magazines of the *North Dakota* and *Delaware*.

With respect to the installation of fire-control masts on the *North Dakota* and *Delaware*, recommended by the Conference, the Department has already made provision for the installation of such masts, should they be finally recommended for use in the service, and will now take definite steps toward their installation.

The action of the Conference with respect to the shortening of cowls, smoke pipes, etc., is not so conclusive as to warrant extensive changes in that direction until the matter has been given very careful additional consideration, since the shortening

of cowls and smoke pipes has grave disadvantages, which were recognized by the Conference in subsequent discussion on the subject.

The provision of additional bridges for navigational purposes is directly opposed to some of the most recently expressed opinions received from the Atlantic Fleet, but the Department will give the matter most careful consideration in order to meet, as far as practicable, the consensus of opinion of officers of the fleet with respect to this matter.

It appears, therefore, that the specific changes recommended by the Conference in the *North Dakota* and *Delaware* are entirely practicable and do not materially affect the design of the vessels as a whole.

The Department does not deem it necessary to submit further comment upon the proceedings of the Conference with respect to the alleged defects in the *North Dakota* and *Delaware* other than to quote the following resolutions of the Conference:—

"Resolved, That the votes of the Conference upon resolutions based upon separate characteristics of the design of the *North Dakota* are not to be considered in any way as adverse criticism of the design of the *North Dakota* as a whole, as it is recognized that material sacrifices of weight and space had to be made in order to place five two-gun 12-inch turrets on the middle line and to obtain a speed of 21 knots, which should give an offensive 12-inch broadside fire to the *North Dakota* equal to any other warship afloat or known to be designed at the present time."

The foregoing resolution received the unanimous approval of the Conference, and can be found on page 8 of the proceedings.

At the conclusion of consideration by the Conference of the designs of the *North Dakota* and *Delaware* the following resolution was adopted by a vote of 35 to 20:—

"Passing from the consideration of specific minor defects, the Conference believes that the design of the *North Dakota* and *Delaware* is an excellent one."

The vote on this resolution appears on page 75 of the proceedings.

After disposing of the criticisms upon the design of the *North Dakota* and *Delaware*, the Conference proceeded to the consideration of the designs of the *Utah* and *Florida*.

The recommendations of the Conference with respect to the designs of the *Utah* and *Florida* were based largely upon its previous action with respect to the designs of the *North Dakota* and *Delaware*, and the following definite resolutions were approved, as shown by the proceedings:—

Page 83 of proceedings:—

"The Conference recommends that the present arrangement of turrets of the *North Dakota* be adhered to in the *Florida* and *Utah*."

The above motion was put to a vote and carried by a vote of 41 yeas to 9 nays. Seventeen of the "yea" votes were qualified by considerations involving delay in the construction of the vessel.

Page 90 of proceedings:—

"The Conference recommends that in the *Florida* and *Utah* a weight equivalent to a casemate armor 8 inches thick be divided between side armor and fore and aft splitter bulkhead for the protection of the uptakes, etc.; the splitter bulkhead to be not less than 1½ inches thick and to be worked, as far as practicable, so as to isolate the gun positions. The increased weight can be

covered by the proposed substitution of 5-inch torpedo defense guns for 6-inch guns."

The above motion was carried by a vote of 34 yeas to 15 nays. It should be remarked in connection with the last sentence of the above resolution that the statement therein contained as to the saving in weight by the substitution of 5-inch torpedo defense guns for 6-inch guns, is gravely in error, due to a subsequent resolution which specified, in effect, a different 5-inch gun from that provided for the *North Dakota* and *Delaware*, the net saving in weight being only a small fraction of that originally contemplated.

Page 93 of proceedings:—

"The Conference recommends that the torpedo defense battery of the *Florida* and *Utah* be composed of 5-inch guns designed for high initial velocity and flat trajectory."

The foregoing proposition was unanimously approved.

Page 96 of proceedings:—

"The Conference recommends that the thickness of the belt armor and the lower casemate armor of the *Florida* and *Utah* be as in the *North Dakota* and *Delaware*."

The above proposition was approved by a vote of 35 yeas to 15 nays. Six of the "yeas" were qualified by suggestions looking to greater protection of steering gear; one preferred a uniform thickness of armor, and two were qualified by considerations of delay.

After disposing of the specific recommendations just enumerated with respect to the armor, armament, etc., of the *Utah* and *Florida*, the Conference approved the following resolution, which is found on page 100 of the proceedings:—

"Whereas it is the sense of this Conference that it is very inexpedient to delay in any way the placing of the contract for the *Utah* and *Florida*; it is recommended that the design of the *Utah* and *Florida* shall conform to the design of the *North Dakota*, except in particulars covered by resolutions heretofore adopted by this Conference, or such changes as may be deemed expedient by the Department; and it is further resolved that the Conference shall proceed to consideration of the military features which should be embodied in the designs of ships subsequent to the *Florida* and *Utah*."

The above resolution was carried by a vote of 42 yeas to 9 nays, eight of the "yea" votes being qualified as follows:—

"Four, 'Yes, because believe the design to be an excellent one.'

"Two, 'Yes, but believe it also to be the duty of the Conference to submit recommendations with reference to the *Utah* and *Florida* without regard to delay.'

"One, 'Yes; but think the question of torpedo-defense guns and torpedo tubes should be discussed in detail.'

"One, 'Yes; because I believe the design is an excellent one, and delay very undesirable.'"

Two days after the action noted in the preceding resolution the following telegram from the President was transmitted to the Conference and immediate action thereon taken:—

"I desire Newport Conference to submit to me, as a whole, their recommendations concerning the *Utah* and *Florida*, these

recommendations covering plans to remove all defects found in the *North Dakota* and *Delaware* without regard to delay and without regard to any existing plans or arrangements relative to the *Utah* or *Florida*, their armor or armament; also to state how much delay there will be if the recommendations for the changes are adopted; also submit recommendations for these two ships that will involve practically no delay in their plans. I desire to have the whole matter before me for my judgment."

After full consideration, as indicated in the report of the proceedings, pages 108 to 158, definite and final action was taken, this action being contained on pages 155 to 158.

Of the six alternative resolutions appearing on pages 155 to 157, a vote of the Conference disclosed the fact that resolution No. 1 met with unanimous approval of the Conference, this resolution being as follows:—

"Resolved, That to carry out the President's instructions to submit recommendations for the *Utah* and *Florida* that will involve practically no delay in their plans, the Conference is of the opinion that the resolutions of the Conference already passed with regard to the *Utah* and *Florida* comply with this part of the order."

With respect to the other alternative resolutions proposed, resolution No. 2 received 24 yeas for first choice and 16 for second choice, this resolution being as follows:—

"Resolved, That to carry out the instructions to the Conference to submit recommendations covering plans to remove all defects found in the *North Dakota* and *Delaware* without regard to delay, the Conference recommends that, in addition to the changes already recommended for the *Utah* and *Florida*, which changes will not involve delay, the following additional changes would result in an improvement in these two ships:—

- "1. Raise No. 4 turret and lower No. 3 turret.
- "2. Increase the protection to steering gear."

It is obvious from the consideration of resolution No. 2 that the only changes proposed in the design of the *Utah* and *Florida*, over and above those already disposed of in connection with the changes recommended in the *North Dakota* and *Delaware*, are the following:—

- "1. Raise No. 4 turret and lower No. 3 turret.
- "2. Increase the protection to steering gear."

These changes, however, would involve very considerable changes in the distribution of weights; would involve recalculation for trim, and the rearrangement of the principal structural plans. The resulting delay would not be less than sixty days, so that the contract for these vessels, if such changes were made, could not possibly be let until January, 1909. On the other hand, the Department, having kept in close touch with the work of the Conference, is prepared to carry out immediately the recommendations of the Conference as contained in resolution No. 1 and can issue advertisement and proposal for the construction of the *Utah* and *Florida* on September 1 should the President so direct.

In this connection it is specially worthy of note that the recommendations of the Conference "covering plans to remove all defects found in the *North Dakota* and *Delaware* without regard to delay and without regard to any existing plans or arrangements relative to the *Utah* or *Florida*, their armor or armament," are identically the same as those already provided for in the plans which will be ready for issue on September 1, except for

(1) "Raising No. 4 turret and lowering No. 3 turret" and (2) "Increasing the protection to steering gear." With respect to these two items, it should be noted that the proceedings of the Conference clearly indicate that there are distinct differences of opinion as to the advisability of raising No. 4 turret and lowering No. 3 turret, the vote on this question being very close; also that the actual protection already provided by the plans and specifications for the steering gear of the *Florida* and *Utah* is nearly 50 per cent greater than that provided for previous battleships of that class, due to recent important developments in protective deck material, the actual experiments on recent test plates of this material showing an increase in resisting quality of from 50 to 70 per cent.

In conclusion, therefore, giving full consideration to the unanimous recommendation of the Conference, contained on page 100 of the proceedings, as to the inexpediency of delay in placing the contract for the *Utah* and *Florida*, also the unanimous recommendation of the Conference, contained on page 101, to the effect that "our battleships should be built in groups of four, possessing similar tactical and strategical qualities," and the explicit provision of the act of Congress making provision for these battleships, which states that they shall be "similar in all essential characteristics to the battleship authorized by the act of Congress making appropriation for the naval service for the fiscal year 1908," the Department recommends that you approve the issuance of the advertisement and proposals for the construction of the battleships *Utah* and *Florida* on September 1, 1908, on plans and specifications based upon designs of the *North Dakota*, except in the particulars covered by resolutions adopted by the Conference and changes deemed expedient by the Department, this action having been unanimously recommended by the Conference and the plans and specifications having already been prepared in accordance therewith.

Very respectfully,

TRUMAN H. NEWBERRY,
Acting Secretary.

The President,
Oyster Bay, L. I.

Confidential.]

DEPARTMENT OF THE NAVY,
GENERAL BOARD,
Washington, November 11, 1908.

SIR:—In compliance with the Department's instructions of the 27th ultimo and its memorandum of the 7th instant, I have the honor to forward herewith, confidentially, a résumé, prepared by the General Board, of the proceedings of the Conference at Newport at which was considered a certain letter of Commander Key, and plans of present and future designs of battleships.

Very respectfully,

GEORGE DEWEY,
Admiral of the Navy, President General Board.

The SECRETARY OF THE NAVY.

(Inclosure in duplicate.)

NEWPORT CONFERENCE ON COMMANDER KEY'S LETTER.

The Newport Conference on Commander Key's letter was held at the Naval War College, between July 9 and August 21, 1908. The following synopsis of its proceedings and conclusions is issued to the service for its information.

On June 9, Commander A. L. Key, U. S. Navy, addressed the following letter to the Navy Department:—

"FORE RIVER SHIPBUILDING COMPANY,
Quincy, Mass., June 9, 1908.

"SIR: 1. In compliance with General Order No. 49, dated June 20, 1907, I have the honor to submit the following comments and suggestions relative to certain main features of the design of the battleship *North Dakota*, building at the works of the Fore River Company:—

"2. It is presumed that this vessel is built primarily to fight vessels of corresponding type built or building in foreign navies. If we assume that a modern 12-inch gun will maintain in action a rate of fire of one shot per minute, the *North Dakota*, in the course of thirty minutes, in a broadside engagement with an adversary of the same general type, will have fired at her, at a distance of about 6,000 yards, three hundred (300) 12-inch shells. To those familiar with the records of modern naval target practice it will be conceded that she will probably be hit within the thirty minutes by fully one hundred 12-inch shells filled with high explosive. If we consider what will be her condition after the thirty minutes' firing, it will be generally conceded that all that portion of her protected by 5-inch armor will be pierced a great number of times; that her 5-inch battery will be an utter wreck, her uptakes between the main and upper decks shot away, her main deck, probably many of her compartments, and perhaps some of her turrets (artificially ventilated) will be uninhabitable on account of smoke and coal gases, her unarmored ends will be shot away, and if she should be so fortunate as not to have her belt or 8-inch armor pierced her reserve buoyancy will be reduced to that proportion of the ship above her new water line that is covered by her 8-inch and belt armor. In this condition should the enemy haul off and attack a fleet of *North Dakotas* at night with a fleet of destroyers supported by armored cruisers the *Dakotas* would be placed in a very precarious condition. It is clearly and absolutely certain that placing the 5-inch guns and uptakes behind a citadel of 5-inch armor and exposing them to the fire of ten 12-inch guns for ten minutes is merely assisting the enemy to quickly and completely wreck them, as the 5-inch armor will not stop the 12-inch shell, but practically insures their explosion, with the accompanying great destructive effect from their fragments.

"In his testimony before the House Naval Committee the Chief Constructor, in referring to light 5.5-inch and 6-inch superstructure armor, said:—

"But it should be remembered that all of the superstructure armor is light and penetrable with ease by 8-inch projectiles. It only protects the secondary battery from the fire of the secondary battery of the enemy."

"Since the above statement of the Chief Constructor is absolutely true, why use for protection from the fire of 12-inch guns armor that is penetrable with ease by an 8-inch gun? No doubt proper protection for the torpedo-defense battery in the all-big-gun battleship presents a difficult problem, but the solution given in the *North Dakota*—low gun positions protected by 5-inch citadel armor—appears to me to be altogether indefensible. So far as I have been able to learn, the British, in their three latest battleships in commission, the *Lord Nelson*, *Agamemnon*, and *Dreadnought*, have not a single gun mounted on the main deck. Their guns are all given heavy protection or mounted in the

open, and they are all in high positions. There can be no question that guns which are to receive the fire from guns of 12-inch caliber had much better be mounted in the open than behind 5-inch armor. If it is assumed that the *North Dakota* is designed for the purpose of fighting the old type of battleship and is not good enough to fight vessels of her corresponding type in foreign navies, her 5-inch armor protection is defensible; but it is certain that in line of battle she will have to engage a vessel of her general type.

"If it is not feasible to use case shot or shrapnel from 12-inch guns for torpedo defense, it must be admitted that battleships of the *North Dakota* type, after a short day action with foreign battleships of corresponding type, will be practically defenseless against the enemy's destroyers at night. It should be remembered that the British, Germans, French, and Japanese are well provided with destroyers.

"In connection with the subject of providing well protected and high positions for the torpedo defense guns of the most recent type of battleship it is suggested that it may be practicable to use the tops of the main turrets for this purpose. It may be feasible to design the main turrets so that a pair of torpedo defense guns can be pocketed in trenches in the tops of the turrets, a small block of armor hinged to the turret to close the forward end of the trench over the chase of the gun, so that only the muzzle and a portion of the chase would be exposed to the fire of the enemy on the engaged side. It would be necessary to equip such guns with mounts that would permit their being quickly raised to their firing position, and the mounts should permit them to be trained independently of the turrets. The ammunition for such guns could be supplied through the main turrets without interference with the 12-inch guns, as they will not be fired at the same time. If two guns could be installed on the tops of each of the *North Dakota's* turrets she would have a broadside fire of ten torpedo defense guns. The two on the after turret could fire directly astern and the two on the forward turret directly ahead. Should it not be feasible to mount and satisfactorily protect torpedo defense guns on the tops of the main turrets, I am of the opinion that, instead of mounting them in a thin citadel, such guns would be much better protected and located if they were mounted in pairs in turrets of their own of 8-inch armor in positions as elevated as practicable on the upper deck without interfering with the after turrets firing 45° forward of the beam and the forward turrets 45° abaft the beam. Torpedo defense battery turrets might be placed in positions corresponding to the 9.2-inch turrets of the *Lord Nelson*. In a broadside engagement the greater portion of the 12-inch shell will strike the citadel armor at an angle near enough to the normal to insure penetration, while a very small proportion of the shell will strike a turret of small circumference at an angle near enough to the normal to cause penetration.

"3. If it is conceded, as I think it must be, that the fire of ten 12-inch guns will, in a very few minutes, destroy the reserve buoyancy of the *North Dakota* type above the main deck (10 feet 3 inches above the designed water line, and probably about 8 feet above her fighting draft), I am strongly of the opinion that the type would be greatly improved if the 5-inch citadel armor is entirely abrogated and the weight so saved be devoted to turrets

for the torpedo defense battery and to protection, as far as possible, to the uptakes and bases of the funnels. It also appears possible, since artificial ventilation must be constantly employed, that the funnels may be considerably shortened and long ventilator pipes and large cowls entirely done away with, as has been done in the English *Dreadnought*.

"4. I have not heard any main feature of the design of the *North Dakota* more generally criticised than the location of No. 3 turret between the engine and boiler rooms. On account of this location the 12-inch powder magazine for this turret is completely enveloped at both ends and sides by the main steam pipes, about 40 inches in circumference, the auxiliary exhaust pipes, about 22 inches in circumference, and the main feed pipes, about 18 inches in circumference. Between the pipes and the magazine there is a 12-inch air space, and a water collar is fitted about the pipes where they go through the transverse water-tight bulkheads, and through this collar water will be circulated to prevent the metal from conducting the heat directly to the magazines. Two pumps will be installed in order to keep this circulating water constantly going while the ship is in commission. It is the general opinion that it will be impossible, notwithstanding this special installation, to keep the temperature of this magazine from rising quite high, considerably above that of the other magazines. As noted in the reports of Admiral Evans and Naval Constructor Robinson, the lead of small steam pipes, such as those to the steering engine, cause high temperatures in the magazines near such piping. As it is well known, in order that our smokeless powder may retain its ballistic qualities, that it should not be subjected to high temperatures, and, as there have been during the past five years five foreign naval vessels sunk by explosions in their magazines, it appears to be highly desirable to avoid, if practicable, this location of No. 3 turret in design.

"I am definitely informed by an expert designer, familiar with designs of naval vessels, that it is entirely practicable by lengthening the *North Dakota* type by about 25 feet and by adding about 300 tons to the weight to locate the engine room directly abaft the boiler room, with No. 3 turret abaft the engine room and at the same height as No. 2 turret, No. 3 turret to fire over No. 4 turret, which latter would be the same height as No. 1 turret, and No. 4 turret to fire over No. 5 turret, which would remain at its present height. If this change is practicable in the new designs, it could undoubtedly be accomplished well within the cost authorized by Congress. This change would remove a very objectionable feature in the present design and would give a stern fire of six 12-inch guns instead of the present four, and in broadside fire the after turrets could be so located that they would fire full 45° forward of the beam, which would be all that is necessary.

"5. From such data as I am able to obtain it appears that our present 12-inch gun is about equal in power to the German 11-inch and is less powerful than the English, French, and Japanese 12-inch guns. It is contrary to our traditional naval policy to equip our line of battleships with less powerful ordnance than our possible adversaries, and, if my information is correct, I think

we are making a mistake in departing from our long-established policy.

"6. According to the testimony of the President of the Board on Construction and the Chief Constructor before the Senate Naval Committee it is their opinion, and the expert opinion the world over, that the lower edge of the armor belt should be 5 feet below the water in order to reasonably protect the under water body of the battleship. So far as I am aware nothing has occurred since they gave their testimony, no new developments, to cause the slightest change in expert opinion on this important subject. It has been reported that during the recent cruise of the Atlantic Fleet to the Pacific that the battleships in moderate weather frequently exposed to view the lower edge of the armor belt. But it has been well known since battleships were first constructed that in a sea that happens to fit a battleship's period of roll she will expose to view the lower edge of her belt. Nevertheless it has been the uniform practice in all foreign navies and has been the practice in our own navy to place the lower edge of the belt at 5 feet below the designed normal water line. A board principally composed of seagoing officers recommended, in 1896, and the Secretary of the Navy approved, the precise location of the designed normal water line of our battleships. The President of the Board on Construction and the Chief Constructor in their testimony before the Senate Committee expressly approved the report of this board. The recommendations of the Walker Board required that the battleship's normal draft should be her draft when fully equipped for service with not less than two-thirds of her full allowance of coal, stores, and ammunition on board. The President of the Board on Construction expressed the opinion that the rule should call for full ammunition instead of two-thirds. In my opinion, which I believe is the opinion of the great mass of seagoing officers who have given the subject consideration, the above recommendation of the Walker Board was the most important recommendation made in its report. As everyone, including the Secretary of the Navy, seems to agree that it was a good recommendation, there appears to be every reason why it should be in operation. To the best of my knowledge, this recommendation, the most important portion of the report of a board of seagoing officers, approved by the Secretary of the Navy, is consistently and deliberately ignored, with the result that the vessels of the Atlantic Fleet are over draft as measured by the rule of the Walker Board, essentially to the extent given in my testimony before the Senate Committee; that is to say, the two of the *Kentucky* class 27 inches, the three of the *Alabama* class 20 inches, the three of the *Ohio* class 20 inches, the five of the *Virginia* class 24 inches, the two of the *Louisiana* and the three of the *Kansas* class 17 inches. The Chief Constructor, in his letter to the Senate Committee dated April 13, attempts to throw discredit upon any data taken from the official log books relative to the draft of vessels and the amount of coal on board, but in the data submitted by me practically every source of error he mentions was avoided, and as each computation was the average of several observations the final result obtained represents average service conditions with reference to the amount of stores, steaming water, and ammunition carried. The Chief Constructor gives figures very much lower than mine, based

apparently on his own private data and necessarily largely resting upon estimates made by naval constructors, as the overdraft was determined immediately after each ship was accepted by the Government. I am entirely confident that if the overdraft of these vessels should be determined as measured by the rule of the Walker Board by official boards, which could be easily done in a few hours, that the figures I have above indicated, and not the figures of the Chief Constructor, would be found to be essentially correct.

"The general considerations involved in the question of the location of the lower edge of the water-line armor belt were very clearly stated by the Chief Constructor in his testimony before the House Naval Committee. He said:—

"The subject of weight is a very serious one for naval designers, and the immersion of the lower edge of the armor belt has been limited to 5 feet; not because that is ample in the judgment of the designer, under all conditions; but because it is all that can be permitted under the allowance of weight for armor protection, and under ordinary conditions it should give ample protection."

"Therefore if the figures shown by my investigation of the subject are correct, as I thoroughly believe them to be, I think every unprejudiced and disinterested person must concede that our battleships are very deficiently and inadequately protected above the water line; that they are protected beneath the water out of all proportion to their protection above the water; that they have very little reserve buoyancy at fighting draft on account of their overdraft, and the little reserve buoyancy they have is very inadequately protected. In my judgment, the question of the overdraft of our battleships under service conditions is a most important subject and is a matter that should receive the immediate attention of the Department.

"An examination of a book entitled 'War Ships,' recently written by E. L. Attwood, Corps of Naval Constructors, Royal Navy, and lecturer at the Royal Naval College, Greenwich, clearly shows that the English give much more attention to this important question of overdraft than has been the case in our navy.

"On page 179, after explaining precisely the weights that are carried at the normal load draft, the deep-load draft, and the light draft, he states that—

"The drafts of water of each ship in the navy, as completed, in three conditions of the ship, are given in the stability statement furnished by the ship's book."

"On page 233 a specimen stability statement is given which shows the precise draft of the vessel for the three conditions named and her stability at each of the three specified loads. On page 303 he requests the reader to state the draft of his ship at 'deep load,' 'normal load,' and 'light.' No commanding officer of one of our ships could answer this question, for he doesn't know what weights his ship is supposed to carry at these loads. The stability table furnished our ships makes no reference to normal, deep, or light draft, but merely gives the draft corresponding to tons of total displacement. Our commanding officers cannot determine the overdraft of their vessels because they are not informed what weights the ship is supposed to carry at the different loads.

"On page 180 Mr. Attwood states that—

"The question of draft is looked into occasionally as required, and when necessary a new stability statement is issued."

"Also, on page 180, he states:—

"The position of the deep load line is indicated inside the ship by label plates and a broken point line for the information of the ship's officers."

"On page 281, he states that—

"The D. 284 form filled up by the dockyard, and the D. 211 form filled up by the ship's officers, are also of extreme value as to weights to the designing staff of the Admiralty."

"On page 151, Naval Constructor Attwood, in explaining the reasons that prompted the British Admiralty in 1894 to abrogate the thick narrow belt of the Royal Sovereign class and adopt the broad belt of the Majestic class, says:—

"Another point is that ships increase their draft as time goes on (about an inch yearly), owing to alterations and additions, so that the value of the belt gets less and less during the course of years, unless steps are taken to reduce the draft."

"In my opinion the value of the belts of our battleships now in the Atlantic Fleet had greatly depreciated the day they were placed in commission because they were greatly overdraft under 'normal' conditions equipped for service, and no doubt their thick narrow belts are steadily and further decreasing in value each year, due to further increases of their excessive original draft, as pointed out by Naval Constructor Attwood, Royal Navy.

"If those who are responsible for the design of the North Dakota have allowed for only 900 tons of coal at 'normal draft' instead of two-thirds of her bunker capacity, as required by the rules of the Walker Board, she will have a strip of belt armor 20 inches wide more than 5 feet beneath her line of flotation at 'fighting draft'—in excess of all that can be permitted under the allowance of weight for armor protection. I have already shown in the first portion of this paper the utter inadequacy of the protection of her 5-inch battery and uptakes.

"7. In conclusion, I strongly recommend to the Department the importance of immediately and officially determining the overdraft of our battleships in commission as determined by the approved recommendation of the Walker Board; that is, when fully equipped for service with not less than two-thirds of their coal, stores, and ammunition on board.

"I further strongly recommend that the stability statements furnished to the commanding officers of our ships contain corresponding data furnished in the British naval stability statements—that is, that they show the precise weights carried at normal draft, deep-load draft, and light draft, with the exact draft of the ship when carrying each of these loads.

"Very respectfully,

"A. L. KEY,

"Commander, U. S. Navy.

"THE SECRETARY OF THE NAVY.

"NAVY DEPARTMENT,

"Washington, D. C."

The Conference was created by the following letter:—

"NAVY DEPARTMENT,
"Washington, July 2, 1908.

"SIR:—The Department forwards herewith a copy of a letter dated June 9, 1908, submitted by Commander A. L. Key, United States Navy, relative to certain features of the design of the battleship *North Dakota*, building at the works of the Fore River Shipbuilding Company, Quincy, Mass.

"The President directs that the General Board and the Naval War College make a joint report on the subjects referred to therein, and on the design of the *North Dakota* class, including an opinion as to the defects, if any, in the designs of these vessels; an opinion as to whether any or all of these defects can be wholly or partially remedied, and particularly a recommendation as to all of the military characteristics which should be required in the battleships to be built in the immediate future, this recommendation to include specific reference to the question of armor protection for hull and battery; the number, caliber, and location of the guns of the main battery; the number, caliber, special design, and location of the torpedo-defense guns; and the number and location of the torpedo tubes.

"The report will also include an expression of opinion as to whether it would be well to have all commanders in chief directed to require the commanding officer of each ship in the navy to appoint a board to determine what is to be the draft under the conditions prescribed by the Walker Board—that is, what the draft would be when fully equipped for service and with two-thirds of the full allowance of stores, ammunition, and coal on board; and whether it would not be well to have the commanding officers of our ships furnish (furnished) stability statements containing information corresponding to that furnished in the British naval stability statements—that is, the actual weight carried at normal draft, deep-load draft, and light draft, and the exact draft of the ships when carrying each of these loads.

"The joint report called for by this letter will be submitted to the Department as soon as practicable.

"Respectfully,

"TRUMAN H. NEWBERRY,

"Acting Secretary.

"The GENERAL BOARD."

Other officers than those of the General Board and the Naval War College were ordered from time to time as members of the Conference. The appended list gives the officers comprising the Conference, with the dates of their reporting and detachment. Some of these officers on other duty were temporarily absent during the sessions of the Conference.

The President of the United States visited the Naval War College on July 22, and presided at the session of the Conference. He made an address, and directed that in all the recommendations made by the Conference the votes of all the members should be recorded (by name) and sent to the Department. To comply with this requirement, the Navy Department issued the following instructions, received by the Conference on July 30:—

"In view of emergencies which have called, or may in the future call away members of the General Board or of the staff of the War College and officers heretofore ordered into conference, in order to comply with the President's verbal directions that the views of the officers should be expressed on the subjects voted on, it is desirable that their views be recorded in writing if they are absent, or by a yea-and-nay vote if they are present, and included in the proceedings of the Conference."

On August 17 the Conference received the following additional instructions:—

"I desire Newport Conference to submit to me as a whole their recommendations concerning the *Utah* and *Florida*, these recommendations covering plans to remove all defects found in *North Dakota* and *Delaware* without regard to delay and without regard to any existing plans or arrangements relative to the *Utah* or *Florida*, their armor or armament; also to state how much delay there will be if the recommendations for the changes are adopted. Also submit recommendations for these two ships that will involve practically no delay in their plans. I desire to have the whole matter before me for my judgment.

"THEODORE ROOSEVELT."

The work of the Conference was done partly by committees but chiefly by the whole Conference acting upon committee reports in detail and upon such other matters as members presented. Commander Key presented a number of resolutions intended to cover the allegations of his letter.

The principal criticisms and suggestions of Commander Key's letter were:—

(1) *The inefficiency of the 5-inch upper casemate armor of the "North Dakota" to protect 5-inch battery and uptakes, and that the type would be greatly improved if the 5-inch armor were entirely abrogated and the weight so saved devoted to turrets for the torpedo defense battery (the 5-inch guns) and as far as possible to protection to the uptakes and funnels.*

(2) *That the position and protection of the 5-inch battery are indefensible.*

(3) *That the 5-inch guns might be mounted on the tops of the turrets or in pairs in turrets of 8-inch armor on the main deck.*

(4) *The danger of the unarmored ends of the "North Dakota."*

(5) *The faulty location of No. 3 magazine between the engine and fire rooms, and in this connection the location of No. 3 turret.*

(6) *The relative heights of Nos. 4 and 5 turrets and in this connection a suggestion that No. 3 turret might have been placed abaft the engine room and that Nos. 3, 4, and 5 turrets might have been echeloned in the vertical plane to give fire directly aft to all three.*

(7) *The inferiority of American to foreign guns.*

(8) *The position of the normal water line and the depth of the armor belt.*

(9) *The overcraft of battleships already constructed.*

All the above subjects were considered by the Conference, and in addition thereto, a number of other subjects—like fire-control masts, size and equipment of conning tower, etc.—of importance in the consideration of battleship design. In the following synopsis these subjects will be taken up in their order, with the action of the Conference upon all resolutions and propositions relative to them, with such comment only as may be necessary to show the relation and connection and to explain matters which might otherwise appear to be obscure.

On July 23 the following resolution was adopted without opposing vote:—

No. 2. "Resolved, That the vote of the Conference upon resolutions based upon separate characteristics of the design of the *North Dakota* are not to be considered in any way as adverse criticisms of the design of the *North Dakota* as a whole, as it is

recognized that material sacrifices of weight and space had to be made in order to place five two-gun 12-inch turrets on the middle line and to obtain a speed of 21 knots, which should give offensive 12-inch broadside fire to the *North Dakota* equal to any other battleship afloat or known to be designed at the present time."

(1.)

"The inefficiency of the 5-inch upper casemate armor of the 'North Dakota' to protect 5-inch battery and uptakes, and that the type would be greatly improved if the 5-inch armor were entirely abrogated and the weight so saved devoted to turrets for the torpedo defense battery (the 5-inch guns), and as far as possible to protection to the uptakes and funnels."

On July 22 the Conference passed the following resolution with one negative vote:—

No. 1. "Resolved, That the Conference considers that splinter-proof armor should be placed around the uptakes and ventilator supply pipes within the citadel, between the upper limit of 8-inch armor and the upper deck in the *North Dakota*, to afford better protection to said uptakes and supply ventilator pipes."

On July 23 the following resolution was rejected by a vote of 52 to 10:—

No. 4. "Resolved, That whereas 5-inch casemate armor is readily penetrated by heavy projectiles at battle ranges, resulting in the scattering of many fragments of armor which will injure the light guns, the Conference considers that these guns on the *North Dakota* would be in less danger behind no armor than behind 5-inch armor, when attacked by 12-inch projectiles."

On July 30 the following resolution was adopted without opposing vote:—

No. 15. "Resolved, That in view of the present knowledge concerning the construction and efficiency of turrets for torpedo defense guns, the Conference does not consider it desirable to mount such guns in turrets on the *North Dakota* or vessels of her design."

[This resolution refers to a suggested remedy, which was found inexpedient, for a defect which was pointed out and was acknowledged to exist.]

On July 31 the following resolution was adopted without opposing vote, referring to paragraph 2 of Commander Key's letter, suggesting that torpedo defense guns be installed on the tops of the turrets of the most recent types of battleships:—

No. 18. "Resolved, That this Conference does not consider this disposition desirable, but the Conference recommends that the general question of mounting torpedo defense guns be made the subject of special inquiry by the Bureau of Ordnance, with the view of mounting them in higher and more commanding positions than is the case of the torpedo defense guns of the *North Dakota*, including the plans suggested by Commander Jayne and Commander Chase."

On August 11 the following resolution was passed with one opposing vote:—

No. 34. "The Conference favors utilizing the splinter bulkheads which have been recommended for the protection of the uptakes and the ventilator supply pipes on the gun deck for the further purpose of isolating the gun positions."

On August 14 the following resolution was adopted by a vote of 42 to 15:—

No. 43. "The Conference recommends that in the *Florida* and *Utah* a weight equivalent to a casemate armor 8 inches thick be divided between side armor and fore and aft splinter bulkheads for the protection of the uptakes, etc., the splinter bulkheads to be not less than 1½ inches thick and to be worked as far as practicable so as to isolate the gun positions. The increased weight can be covered by the proposed substitution of 5-inch torpedo defense guns for 6-inch guns."

(2.)

"That the position and protection of the 5-inch battery are indefensible."

On July 23 the following resolution was adopted by a vote of 50 to 11, and two members not voting:—

No. 3. "Resolved, That the 5-inch battery of the *North Dakota* is too low to be used efficiently in ordinary trade-wind weather."

Resolutions Nos. 15 and 18, quoted above and adopted without opposing vote, are referred to in this connection.

(3.)

"That the 5-inch guns might be mounted on the tops of the turrets or in pairs in turrets of 8-inch armor on the main deck."

See resolutions Nos. 15 and 18, quoted above.

(4.)

"The danger of the unarmored ends of the 'North Dakota.'"

There was some discussion of this subject, but no resolution was presented; and no opinion was formulated by the Conference.

(5.)

"The faulty location of No. 3 magazine between the engine and fire rooms, and in this connection the location of No. 3 turret."

On July 25 the following resolution was adopted, with 4 opposing votes:—

No. 7. "Resolved, We consider that the 12-inch magazines of the No. 3 turret of the *North Dakota*, being in close proximity to the main and auxiliary steam pipes, are located in a highly undesirable position, and that while we recognize that said location of said magazines may necessarily be required by the design of the *North Dakota*, we recommend that, if practicable, no 12-inch magazines be similarly located in the designs of our future battleships."

On July 27 the following resolution was adopted by a vote of 39 to 21:—

"Whereas the magazine of No. 3 turret on the *North Dakota* is largely surrounded by sources of heat and a better location appears impracticable,

No. 8. "Resolved, That we approve of provision for refrigeration of this magazine."

On August 11 the following proposition was passed unanimously:—

No. 33. "Proposition: The Conference recommends that means of refrigerating be applied to all magazines of the *North Dakota* and *Delaware*."

On July 30 the following resolution was adopted by a vote of 44 to 16:—

No. 17. "Resolved, The Conference recommends that the Navy Department require the commanding officer of each ship in commission to report at the earliest opportunity, and annually thereafter during the first quarter of each fiscal year, the draft at which the vessel under his command would actually float when fully equipped for sea, with full supply of ammunition and two-thirds supply of coal, fuel oil, stores, and feed water; also the density of the sea water, the above to be based upon actual experiment with the actual weights on board."

Upon completing the consideration of Commander Key's letter, the following resolution was adopted by the Conference on August 12 by a vote of 37 to 20:—

No. 38. "Passing from the consideration of specific minor defects, the Conference believes that the design of the *North Dakota* and *Delaware* is an excellent one."

A previous motion to strike the word "minor" from the above resolution and to add the following words was rejected by a vote of 40 to 17:—

"Except for the following defects established by resolutions of this Conference—namely, a 12-inch magazine placed in a highly undesirable location that should be avoided, if practicable, in future battleships; the 5-inch battery placed so low that it can not be used efficiently in ordinary trade-wind weather; the uptake and ventilator supply pipes within the citadel inadequately protected—there is reason to believe in the inferiority of the main-battery guns to those of certain foreign battleships of the same date of completion; undesirable military features caused by placing the two after turrets in close proximity and at the same height; and insufficient main armor protection as shown by the recommendations of the committees of this Conference relative to the proposed main armor protection of the *Florida* and *Utah*."

A motion to strike the word "minor" from the original proposition was defeated by a vote of 32 to 25.

On July 27, the following resolutions were passed without opposing vote:—

No. 9. "Resolved, That the ventilating pipes and cowls in the *North Dakota* and all subsequent designs should be shortened to the lowest practicable limit for the double purpose of removing unnecessary weight and obstacles that are likely to explode shell and cause splinters.

No. 10. "Resolved, That the funnels of the *North Dakota* and ships of subsequent design should be shortened as much as practicable, having in view the necessities of fire control and the habitability of the bridges."

On August 11, the following resolution was adopted without opposing vote:—

No. 26. "It is the sense of this Conference that two fire control masts of the same general type as that tried on board the *Florida*, one forward of the forward smoke pipe, and the other abaft, or over, the after smoke pipe, are essential, and that they should be installed in the *Delaware* and *North Dakota*."

On August 11 the Conference adopted the following proposition by a vote of 44 to 13:—

No. 21. "It is the sense of this Conference that the number and location of the underwater torpedo tubes in the *North Dakota* and *Delaware* are satisfactory."

and the following proposition without opposing vote:—

No. 22. "It is the sense of this Conference that the conning tower in the *North Dakota* and *Delaware* is in the main satisfactory. It is agreed that a larger conning tower would have been better, but no alteration is recommended for the *North Dakota* and *Delaware*."

On August 11 the following proposition was adopted by the Conference by a vote of 45 to 12:—

No. 37. "It is the opinion of the Conference that no change in the thickness of the armor of the *North Dakota* and *Delaware* can be made with advantage, and that the distribution of the armor is in general satisfactory. The above in no way refers to the 5-inch casemate armor, which is the subject of other resolutions."

On August 13 the following proposition was adopted without opposing vote:—

No. 41. "The Conference considers that in the *Florida* and *Utah* it is desirable to have means for transporting ammunition behind armor and above protective decks between the magazines of different turrets."

On August 14 the following proposition was adopted by a vote of 46 to 11:—

No. 44. "The Conference also recommends that the department consider the advisability of further tests to determine the relative merits of flat and inclined protective decks."

On August 14 the Conference adopted without opposing vote the following proposition:—

No. 45. "The Conference recommends that the torpedo-defense battery of the *Florida* and *Utah* be composed of 5-inch guns designed for high initial velocity and flat trajectory."

It had been intended to place 6-inch guns in the *Florida* and *Utah* as torpedo-defense guns.

On August 15 the following resolution was adopted by a vote of 38 to 19:—

No. 47. "Whereas it is the sense of this Conference that it is very inexpedient to delay in any way the placing of the contract for the *Utah* and *Florida*, it is recommended the design of the *Utah* and *Florida* shall conform to the design of the *North Dakota* except in the particulars covered by resolutions heretofore adopted by this Conference, or such changes as may be deemed expedient by the department; and it is further resolved that the Conference shall proceed to the consideration of the military features which should be embodied in the designs of ships subsequent to the *Florida* and *Utah*."

On August 15 the following proposition was adopted without opposing vote:—

No. 48. "The Conference recommends that our battleships should be built in groups of four, possessing similar tactical and strategical qualities."

On August 19 the following proposition was adopted without an opposing vote:—

No. 58. "The Conference is of the opinion that a certain number of torpedo-defense guns be mounted behind armor and isolated by splinter-proof bulkheads, and, further, that a number of torpedo-defense guns be mounted in higher positions than in the *North Dakota*, and that designs for mounting 5-inch guns in the open and taking advantage of armor protection otherwise utilized be carefully investigated by the department."

On August 30 the following proposition was adopted without an opposing vote:—

No. 72. "The Conference is of the opinion that the transverse diameter of the conning tower should be sufficient to permit a view directly astern."

On August 30 the following proposition was adopted without opposing vote:—

No. 76. "In order to determine the best form and arrangement of conning tower the Conference recommends that the conning tower be temporarily removed from some one battleship now completed, and that this vessel be tried with wooden conning towers of various models for the purpose of developing a standard type of conning tower."

On August 31 the following proposition was adopted without opposing vote:—

No. 96. "In connection with the distribution of armor recommended for new battleships, the Conference considers it very important that experiments be made to determine the actual effects of gun fire upon armor at battle ranges. An annual appropriation for experiments of this general nature is urgently needed."

On August 31 the following resolution was adopted by a vote of 35 to 14:—

No. 97. "Resolved, The Conference recommends that for the battleships subsequent to the four whose characteristics are indicated in the above report of the Conference, several designs, representing different schools of thought for each projected type, be prepared and at the proper time be submitted to a special board of officers, not to exceed 13 in number, considered best qualified for the duty of criticising and modifying the designs presented, and finally of recommending to the department the design believed by a majority of the board to embody all the qualities, military and otherwise, best adapted to the needs of the United States Navy at the time of the board's report."

Five members voting in the negative expressed themselves in favor of such a board if permanent, and 15 members voting in the affirmative expressed a preference for a permanent board.

On August 31, after the Conference had completed its work, the following resolution was adopted without opposition:

"Resolved, That in presenting to the Navy Department his written criticisms of certain features in the design of the *North Dakota* which, in his opinion, were either objectionable or undesirable; in supporting these criticisms by arguments based on facts and figures, as he interpreted them; and, in so doing, having furthered the cause of free discussion of vitally important professional topics through the assembling of this Conference, wherein the points at issue have received intelligent and it is believed highly fruitful consideration, Commander Key has rendered a great and invaluable service to the Navy of the United States, one for which he should receive the thanks of his brother officers."

The above summary does not include certain resolutions of the Conference relating to procedure or to certain matters which

were not in any way in controversy, nor does it include the action and recommendations of the Conference with respect to battleships to be built subsequently to the *Florida* and *Utah*.

November 11, 1908.

GENERAL BOARD, NAVY DEPARTMENT,

MEMBERS OF THE CONFERENCE.

Name.	Reported.	Detached.
Rear-Admiral C. F. Goodrich.....	July 9	August 21
Rear-Admiral J. P. Merrell.....	(a)	
Rear-Admiral E. H. C. Leutze.....	July 20	August 21
Rear-Admiral A. R. Coudert.....	July 9	August 21
Rear-Admiral Wm. Swift.....	July 9	August 21
Rear-Admiral W. S. Cowles.....	July 10	August 21
Rear-Admiral R. Rodgers.....	(a)	
Rear-Admiral R. B. Ingersoll.....	(a)	
Rear-Admiral T. C. McLean.....	July 14	
Captain W. McC. Little.....	July 20	August 21
Captain N. E. Niles.....	July 20	
Captain E. D. Barry.....	(a)	
Captain L. C. Hellner.....	(a)	
Captain Aaron Ward.....	July 9	August 21
Captain C. Stoughton.....	(a)	
Captain C. J. Badger.....	July 9	August 21
Captain F. F. Fletcher.....	(a)	
Captain J. T. Newton.....	(a)	
Commander A. F. Fichteler.....	(a)	
Commander W. L. Rodgers.....	(a)	
Commander R. C. Smith.....	(a)	
Commander J. H. Oliver.....		July 25
Commander H. P. Norton.....	August 6	August 21
Commander Edward Simpson.....	July 20	August 21
Commander W. S. Sims.....	July 20	August 21
Commander Gustav Kaemmerling.....	August 3	August 21
Commander W. B. Fletcher.....	(a)	
Commander J. L. Joyce.....	(a)	
Commander F. K. Hill.....	July 21	August 21
Commander V. O. Chase.....	(a)	
Lieut. Commander G. R. Evans.....	August 8	August 21
Lieut. Commander M. L. Bristol.....	July 20	August 21
Lieut. Commander T. Washington.....	(b)	August 20
Lieut. Commander G. B. Bradshaw.....	July 20	August 21
Lieut. Commander A. L. Willard.....	July 20	August 21
Lieut. Commander H. G. Macfarland.....	July 20	August 21
Lieut. Commander F. A. Trout.....	July 20	August 21
Lieut. Commander J. R. P. Pringle.....	July 20	August 21
Lieut. Commander W. S. Cropley.....	July 20	July 27
Lieut. Commander W. R. Gherardi.....	(a)	
Lieut. Commander E. H. Watson.....	(a)	
Lieutenant R. F. Johnson.....	(b)	
Lieutenant D. F. Boyd.....	August 1	
Lieutenant J. A. Coyle.....	(a)	
Lieutenant S. B. Thomas.....	July 20	
Lieutenant H. K. Cope.....	(a)	
Lieutenant J. W. Timmon.....	July 20	August 21
Lieutenant P. D. Berrien.....	(a)	
Lieutenant P. Foy.....	July 20	August 21
Lieutenant W. H. Allen.....	(b)	
Lieutenant E. J. Marquart.....	July 20	August 21
Lieutenant D. C. Birmingham.....	(a)	
Lieutenant W. J. Giles.....	(b)	
Ensign C. A. Lohr.....	(a)	
Surgeon F. S. Bogert, Jr. (c).....	(a)	
Paymaster G. P. Dyer (c).....	July 28	August 21
Professor F. R. Alger.....	August 8	August 21
Naval Constructor D. W. Taylor.....	July 9	August 21
Naval Constructor Robert Stocker.....	July 14	August 21
Naval Constructor H. C. Gillmor.....	July 17	August 21
Naval Constructor R. H. Robinson.....	July 10	August 21
Major L. C. Loran, U. S. M. C.....	(a)	
Major W. M. McKeever, U. S. M. C.....	(a)	
Captain F. S. Cocheu, General Staff (c).....	(a)	
Captain F. Conner, General Staff (c).....	(a)	

(a) Was present at beginning and throughout conference.

(b) Attached to U. S. S. *Dolphus*.
(c) Surgeon Bogert, Paymaster Dyer, and Captains Cocheu and Conner of the Army General Staff were excused from voting upon technical subjects presented.

THE NAVY wishes particularly to commend itself to the membership of the Navy League. The League's format statement of its policies includes practically the whole purpose of this magazine. THE NAVY will maintain a Navy League section, in which will appear such items as are supplied by the Secretary of the League and by Section officers. Chairmen and officers of League Sections and League members generally are invited to address the editor for publication on any matter which would be of particular interest to the League.

THE NAVY LEAGUE OF THE UNITED STATES

President: GENERAL HORACE PORTER
Vice-President: HON. WILLIAM McADOO
Treasurer: CLINTON E. BRAINE
 Room 46, 18 West 34th St., New York, N. Y.

Secretary: HENRY H. WARD
 1308 I St., N. W., Washington, D. C.
Recorder: ROBERT S. SUDANE
Counsel: HERBERT L. SATTERLEE

ADMIRAL BUNCE SECTION

The Admiral Bunce Section, of Hartford, Conn., held its annual meeting in the First Regiment Armory, Thursday, November 12. The following officers were elected for the ensuing year: Chairman, Francis B. Allen; Vice-Chairman, Carroll C. Beach; Secretary, F. E. Bosworth; Treasurer, Robert D. Chapin; Assistant Treasurer, Arthur W. Allen.

This Section has under consideration a plan to have Admiral Evans lecture at Hartford.

ADMIRAL DAHLGREN SECTION

The regular annual meeting of the Admiral Dahlgren Section of Scranton, Pa., for the election of officers and Secretary for the ensuing year was held on the evening of Thursday, November 19.

There was a good attendance of the members and enthusiasm in the league work was manifested. John Howarth was elected chairman for the ensuing year, to succeed Captain D. B. Atherton, who has been the chairman of the section for the past three years; Lieutenant Colonel E. H. Ripple, Jr., was chosen vice-president; and S. Fletcher Weylman, the present treasurer, was re-elected. Captain E. K. Roden was elected corresponding secretary, and John P. Hitchcock recording secretary. Messrs. Atherton, Bailey and Law were elected directors.

Mr. L. A. Osborne made a detailed report on the arrangements the League is making to participate in the welcome to be extended to the Atlantic Fleet on its arrival in home waters.

THE ADMIRAL DU PONT SECTION

Members of the Admiral du Pont Section assembled on the evening of December 15, in the rooms of the Board of Trade of Wilmington, Delaware, and listened to interesting addresses by Levi A. Berdette, John W. Wainwright, R. J. Maclean, and others.

John S. Russell, the Chairman, presided, and he was authorized to appoint a committee on the launching of the new battleship *Delaware*. A charter was received

from the office of the Secretary at Washington, and many new members were enrolled.

An invitation was received for the League to attend the lecture by Rear Admiral Robley D. Evans, to be held in Carnegie Hall, New York City, on January 8, the subject of which will be "From Hampton Roads to San Francisco, in Command of the Atlantic Fleet." The invitation was accepted.

The Chairman was instructed to appoint delegates to attend the National Convention, on the occasion of the arrival home of the fleet.

NICHOLAS BIDDLE SECTION

The Nicholas Biddle Section, of Philadelphia, has completed arrangements for a lecture, to be given under the auspices of the Section, at the Academy of Music, January 18, 1909, by Rear Admiral Robley D. Evans. The subject of the lecture will be "From Hampton Roads to San Francisco, in Command of the Atlantic Fleet." The proceeds of this lecture will be given to the Naval Branch of the Young Men's Christian Association.

The sale of seats will be offered to the members of the Section in advance of the public sale. Miss Harris, 1117 Chestnut Street, will have charge of the sale of tickets and will be furnished with a list of all the members of the Nicholas Biddle Section in good standing, who can obtain their tickets at the advance sale, due notice of which will be given in the daily papers.

ADMIRAL TRENCHARD SECTION

At the meeting held by the Admiral Trenchard Section at the Buckingham Hotel, New York City, on Friday, November 13, the following officers were elected: Chairman, Miss Mary Van Buren Vanderpoel; Treasurer, Mr. Clinton E. Braine; Secretary, Miss Louise Elizabeth Jones.

A resolution was passed to give annually a gold medal for marksmanship at the Naval Training Station at Newport, R. I.

VESSELS OF THE NAVY IN COMMISSION

WHERE STATIONED DECEMBER 19, 1900

*Ships marked * should be addressed in care of Postmaster, New York; ships marked † should be addressed in care of Postmaster, San Francisco, California*

Abarenda	Navy Yard, New York	Minnesota	Colombo, Ceylon
Active	Navy Yard, Mare Island, Cal.	Mississippi	Philadelphia, Pa.
Ajax	Colombo, Ceylon	Missouri	Colombo, Ceylon
Alabama	Navy Yard, New York	Mohican	Olongapo, P. I.
Albany	San Diego, Cal.	Monadnock	Olongapo, P. I.
Alexander	Manila, P. I.	Montana	Norfolk, Va.
Alliance	Culebra, West Indies	Monterey	Olongapo, P. I.
Annapolis	Tutuila, Samoa	Montgomery	Philadelphia, Pa.
Arctusa	Navy Yard, Mare Island, Cal.	Nero	Newport, R. I.
Arkansas	Norfolk, Va.	Nanshan	Guam, M. I.
Atlanta	Charleston, S. C.	Navajo	Mare Island, Cal.
Bagley	Annapolis, Md.	Nevada	Colombo, Ceylon
Bainbridge	Cavite, P. I.	Nevada	Port au Prince, Haiti
Birmingham	Newport, R. I.	Newark	Norfolk, Va.
Brutus	Norfolk, Va. (In reserve.)	New Hampshire	Guantanamo Bay, Cuba
Buffalo	Mare Island, Cal.	New Jersey	Navy Yard, New York
Caesar	En route from Manila to Boston, Mass.	Nina	Colombo, Ceylon
California	Panama, R. of P.	North Carolina	Norfolk, Va.
Callao	Hongkong, China	North Carolina	Norfolk, Va.
Cassine	Manila, P. I.	Ohio	Colombo, Ceylon
Celtic	Navy Yard, New York	Olympia	Norfolk, Va.
Charleston	Iloilo, P. I.	Oscola	Key West, Fla.
Chattanooga	Iloilo, P. I.	Paducah	Portsmouth, N. H.
Chauncey	Cavite, P. I.	Panther	Colombo, Ceylon
Chester	Navy Yard, New York	Pennsylvania	Panama, R. of P.
Chicago	Norfolk, Va.	Pensacola	Training Station, San Francisco, Cal.
Cleveland	Iloilo, P. I.	Peria	San Juan, Porto Rico
Colorado	Panama, R. of P.	Perry	San Diego, Cal.
Concord	Manila, P. I.	Philadelphia	Bremerton, Wash.
Connecticut	Colombo, Ceylon	Pike	Mare Island, Cal.
Constellation	Newport, R. I.	Piscataqua	Olongapo, P. I.
Culgoa	Colombo, Ceylon	Pompey	Manila, P. I.
Cutler	Norfolk, Va.	Porter	Guantanamo Bay, Cuba
Clallam	Colombo, P. I.	Prairie	En route from Colon, R. of P. to Culebra, V. I.
Davis	San Diego, Cal.	Preble	San Diego, Cal.
Decatur	Cavite, P. I.	Rainbow	Manila, P. I.
DeLong	Pensacola, Fla.	Relief	Manila, P. I.
Denver	Iloilo, P. I.	Rhode Island	Colombo, Ceylon
Des Moines	Port au Prince, Haiti	Rowan	Mare Island, Cal.
Dolphin	Port au Prince, Haiti	Salem	San Francisco, Cal.
Douglas	Honolulu, Hawaii	Samar	Canton, China
Eagle	Gonaives, Haiti	Saturn	Mare Island, Cal.
Farragut	San Diego, Cal.	Scorpion	Constantinople, Turkey
Fox	San Diego, Cal.	Severn	Norfolk, Va.
Franklin	Norfolk, Va.	Solace	Panama, R. of P.
Galveston	Iloilo, P. I.	South Dakota	Panama, R. of P.
Georgia	Colombo, Ceylon	Sterling	Portsmouth, N. H. (Iron ship.)
Glacier	En route from Auckland, N. Z., to Talcahuano, Chile	Stewart	Hampton Roads, Va.
Goldborough	San Diego, Cal.	St. Louis	San Diego, Cal.
Grampus	Mare Island, Cal.	Supply	Bremerton, Wash.
Hancock	Navy Yard, New York	Sylph	Guam, M. I.
Hannibal	Boston, Mass. (In reserve.)	Tacoma	Washington, D. C.
Hartford	Norfolk, Va.	Tarantula	Port de Paix, Haiti
Helena	Hongkong, China	Tennessee	Philadelphia, Pa.
Hist	En route from Philadelphia to Charleston, S. C.	Texas	Charleston, S. C.
Hopkins	San Diego, Cal.	Thornton	Pensacola, Fla.
Hull	San Diego, Cal.	Tingey	Pensacola, Fla.
Idaho	Philadelphia, Pa.	Truxtun	San Diego, Cal.
Illinois	Colombo, Ceylon	Uncas	Navy Yard, New York
Independence	Mare Island, Cal.	Vernon	Colombo, Ceylon
Indiana	Philadelphia, Pa. (In reserve.)	Villavieja	Hongkong, China
Iris	Hongkong, China	Viper	Norfolk, Va.
Iroquois	Manila, P. I.	Virginia	Colombo, Ceylon
Justin	Panama, R. of P.	Wabash	Boston, Mass.
Kansas	Colombo, Ceylon	Washington	Panama, R. of P.
Kearsarge	Colombo, Ceylon	West Virginia	Panama, R. of P.
Kentucky	Colombo, Ceylon	Whipple	San Diego, Cal.
Lancaster	Philadelphia, Pa.	Willard	Hampton Roads, Va.
Lawrence	San Diego, Cal.	Wilmington	Hongkong, China
Lebanon	San Francisco, R. I.	Wisconsin	Colombo, Ceylon
Louisiana	Colombo, Ceylon	Wolverine	Erie, Pa.
Macdonough	Pensacola, Fla.	Wompatuck	Olongapo, P. I.
Maine	Hampton Roads, Va.	Wyoming	Mare Island, Cal.
Manly	Annapolis, Md.	Yankton	Buzzards Bay
Marietta	Portsmouth, N. H.	Yorktown	Colombia, Ceylon
Maryland	Panama, R. of P.		Panama, R. of P.
Mayflower	Navy Yard, New York		
Milwaukee	Bremerton, Wash.		

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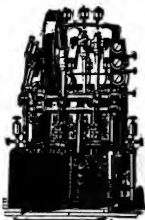
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CONGRESS AND THE NAVY

EDITORIAL

THE NAVAL BUILDING PROGRAM, 1909-10

FOREIGN SHIPBUILDING PROGRAMS

THE NAVAL BASE AT PEARL HARBOR

'NORTH DAKOTAS' AND 'DREADNOUGHTS'
—A COMPARISON OF ARMAMENTS

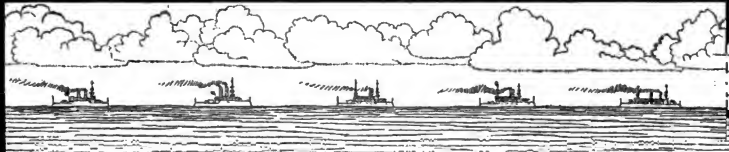
CHART SHOWING COALING STATIONS

SERVICE ITEMS

FOREIGN NAVIES

FOREIGN NAVAL CORRESPONDENCE

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THE NAVY

Vol. II

WASHINGTON, D.C., DECEMBER, 1908

No. 11

NOTE AND COMMENT

IN THE experiments that the British Navy has been conducting at Tor Bay under instructions issued by Captain

The Reginald H. S. Bacon, Director of Naval Ordnance of that navy, two new types of torpedoes are being tried. The battleship *Hibernia* is experimenting at Tor Bay with the new Whitehead torpedo, which can be discharged with accuracy when a vessel is travelling at very high speed. The other new type, the Hardcastle torpedo,—the invention of Engineer-Lieutenant Hardcastle of the British Navy,—if it possesses the speed and radius of action claimed for it, may upset present gunnery calculations and introduce an entirely new element into future naval warfare. The Hardcastle torpedo has in recent tests developed a range of 7000 yards at an average speed of 31 knots; this is 2000 yards greater range than the best torpedo now in use in the British naval service. The best German type has a range of 4000 yards at 21 knots, while the best American type has a range of 4000 at 27 knots.

Before the development of the torpedo into an effective long-range weapon, torpedo installations were omitted from American battleships; but during the past few years there has been a complete reversal of policy in this respect in the American Navy, owing to the realization that in its improved form the torpedo has become an effective battleship weapon that has to be reckoned with. The American Navy has long had 21-inch torpedoes of the Whitehead pattern, and has for some time been testing the new Bliss-Leavitt torpedo that has been developed at Brooklyn, in the design of which are employed a superheating air process, and a turbine engine. When the torpedo is discharged from its tube, an alcohol burner is automatically lighted, thus superheating the compressed air on its passage to the engine, so as to cause greater expansion, increased energy, and additional motive power. This increased power is then applied to the new turbine engine. The Whitehead company has also applied new

superheating devices and turbines to their latest type torpedo. Until the development of the Bliss-Leavitt and the new Whitehead torpedoes, it was not anticipated that warships could be torpedoed at a greater distance than 2000 yards. But the development of these new types at once increased the fighting range to more than 4000 yards.

If the new Hardcastle torpedo, which has maintained a speed of 31 knots for 7000 yards, demonstrates that it can maintain an effective fighting range at that distance, the range of future battles will be increased correspondingly; for while gunnery experts now regard the fighting range for *Dreadnought* fleets armed with modern 12-inch guns as between 6000 and 7000 yards, vessels will keep an even greater distance if they can be torpedoed at 7000 yards. The diameter of the new Hardcastle torpedo is greater than that of present British service weapons, and new tubes had to be built experimentally for use in the tests now being carried out at Tor Bay.

ONE of the most significant lessons of the present cruise of the Atlantic battleship fleet around the world has been its demonstration of the need of naval bases and fleet colliers. Between Hampton Roads and Colombo 311,388 tons of coal were required for the fleet, and this had to be handled by the Bureau of Equipment almost entirely in chartered foreign colliers. Fifty-seven vessels were required to convey the coal, exclusive of over 12,000 tons that was supplied from the coaling plant at Honolulu, which place, if undefended as at present, might not be available in time of war. Forty-nine of the vessels thus far used in handling coal for the fleet's voyage were chartered colliers, while only eight were colliers of the navy—none of them fleet colliers in the full sense of the word.

One of the difficulties of the fleet was its failure to receive its coal as promptly and as expeditiously as would

have been the case if the Government could have shipped the fuel in its own vessels.

While the voyage demonstrates the need of Government colliers, it shows the equal need of certain strategic naval bases, where vessels of the fleet may coal or repair. The voyage has been successful. It could not have been undertaken in war time, if foreign colliers were to be its only dependence for fuel.

THE NAVY, on pages 22 and 23 of this issue, prints charts showing the coaling stations of the United States and Great Britain, the route and ports of call of the battleship fleet, with its principal stops for coal, and the number of these stops where our sole dependence was upon foreign chartered colliers.

THE recommendations for the Pearl Harbor base which were approved by Mr. Newberry are in keeping with the needs of national defence and in line with what foreign nations in the front rank of naval development are doing. Germany has been paying much attention to the establishment of bases and the construction of docks. Having developed Kiel as a Baltic Sea base, the Germans are turning their attention toward Wilhelmshaven, Cuxhaven, and Brunsbüttel. The latter place, situated at the western entrance to the Kaiser Canal, is to have a large dock and will be developed as a formidable North Sea naval base.

Great Britain has many projects in progress for the creation of adequate docking facilities. The British Navy has been needing a great naval base on the North Sea coast of Scotland. Work has been started on such a base at Rosyth at the Firth of Forth, — a project described in previous issues of THE NAVY. The first installment of the Rosyth scheme will cost more than \$16,000,000, and is to be completed within seven years. This portion of the scheme means the construction of a basin capable of accommodating 22 battleships and cruisers; also a dock 850 feet long, 110 feet wide, and 36 feet deep over the sill. In January over 1000 workmen will be engaged in the construction of the new dock at Portsmouth, which, according to the latest figures, is to be 850 feet long and 110 feet wide. New naval harbor works have been completed at Gibraltar. The dockyard extension at that base will be finished in 1910, and three graving docks of this extension are already in use. The final estimate of the cost of this improvement is about \$13,000,000. The docks — also ordered under the British Naval Works Act of 1905 — for Malta have also been completed. The buildings and other subsidiary Maltese works will prob-

ably be ready early in 1909. There have been spent to date about \$5,500,000 on this extension. The final revised cost of the completed project is \$6,000,000. The Keyham Dockyard extension has completed its works under the main contracts, and the new docks, locks, and basins are in use. The entire work will not be finished before 1910, while the expenditure to date has been about \$20,000,000 out of an estimate of \$22,000,000. Great Britain is building a dockyard extension at Hongkong, too, and it was to have been finished this year; but the typhoon and other causes have delayed its completion two more years. The expenditure on this project since 1905 has been about \$6,500,000. The main contract for the naval dockyard extension for Bermuda is filled and its floating dock in use. A dockyard extension for Simon's Bay, Africa, will be ready in 1910, at a cost of about \$10,000,000.

New Foreign Docks

THE preparations for the manufacture of a 14-inch gun for the navy are in keeping with the general progress in the increase in the size and the power of the naval ordnance since the Spanish-American war. Advancement has been rapid in all lines of naval construction, but in no other field of the profession has it been more marvelous than in the art of the gun-maker and the armor manufacturer. The earlier 12-inch guns were 35 calibers in length and weighed 45.2 tons. They had a muzzle velocity of 2,100 foot seconds, using 425 pounds of brown powder and an 850-pound projectile, with a corresponding muzzle energy of 25,985 foot-tons.

During the year following the close of the war with Spain there were developed the so-called models of 1899, which were then the latest types designed for the American navy. The 12-inch Mark III gun brought out in that year was 40 calibers long. Its bore was 40 feet long, five feet longer than that of the 35-caliber 12-inch gun; the total length of the gun proper being 493 inches, thirteen inches longer than the bore. This type of gun, also, fired an 850-pound projectile with a charge of 385 pounds of smokeless powder, with a muzzle velocity of 2800 foot-seconds and a corresponding muzzle energy of 46,246 foot-tons. Thus, with the use of smokeless powder and the addition of five feet to the length of the bore, the initial velocity was increased 700 foot-seconds and the muzzle energy was increased by 20,261 foot-tons. The gun weighed 52 tons. Accidents at the proving ground showed this gun to have a small margin of safety along the chase, and the muzzle velocity of this type has now been reduced to 2400 foot-seconds.

Ten Years' Progress in Gun- making

After that there came breech improvements resulting in the 12-inch 40-caliber Mark IV gun. Close upon that, the fall of 1902 brought out a new design of big gun for the new battleships of the *Louisiana* class, known as the 12-inch 45-caliber Mark V gun, which can be fired with a chamber pressure of 19 tons to the square inch. This is the type of big gun mounted in the *Louisiana*, *Vermont*, *Idaho*, and *New Hampshire* classes of battleships. This model of 12-inch 45-caliber gun weighs 52.9 tons. With a smokeless powder charge of 335 pounds, it discharges an 870-pound projectile at an initial velocity of 2700 foot-seconds, with a muzzle energy of 44,025 foot-tons.

This gun has been still further improved for ships of the *North Dakota* and *Delaware* type, for which there has been developed what is known as the Mark VI gun, which has a weight of 118,733 pounds, an initial velocity of 2,900 foot-seconds (designed), or 2,700 foot-seconds in actual service, when firing a projectile weighing 870 pounds. Similar guns will be mounted in the *Florida* and *Utah*. Work has already been begun on them, and contracts have been let for the forgings for sixteen of these guns to be manufactured at the Naval Gun Factory, and eight others, including four spare guns, have been ordered from private firms. Rear Admiral Mason is authority for the statement that these guns are of a new mark, 45 calibers long, with a new design of powder chamber and increased strength along the chase and at the muzzle. But it does not appear that they will have in service the 2950 foot-seconds muzzle velocity that was recommended for these guns by the Newport Conference.

SECRETARY NEWBERRY announced, on December 10, that in accordance with the recommendation of the Board on

Contracts for New Sub- marines

Construction he had awarded contracts for the eight submarines authorized at the last session of Congress, bids for which were opened November 2, 1908, as follows:—

To the Electric Boat Company (Holland type), two boats under their 20-A bid, at \$450,450 each, and two boats under their 20-D bid, at \$438,900 each, all four boats to be delivered on the Pacific Coast.

To the Lake Torpedo Boat Company, one boat at \$410,000, to be delivered on the Atlantic coast.

To the American Laurenti Company, one boat at \$437,500, to be delivered on the Atlantic coast.

The other two boats authorized by the Naval Appropriation Act of May 13, 1908, will be built at a government yard, if satisfactory arrangements can be made with one or more of the submarine boat companies. The boat

awarded to the Lake Company will be built by the Newport News Shipbuilding Company at Newport News, Virginia. The boat awarded to the American Laurenti Company will be built by the William Cramp and Sons' Ship and Engine Building Company at Philadelphia. As the four vessels awarded to the Electric Boat Company must be delivered on the Pacific Coast it is probable that they will be built on that coast.

It is of interest that for the first time since we undertook the addition of submarines to the navy the contract is awarded for the construction of a submarine of foreign design; this is the boat to be built by the American Laurenti Company. It is the first time that the Lake Company, which for years has been a rival of the Holland people, has been awarded an actual contract for the construction of a submarine for the navy. It is true that the Lake Company is now building another submarine under an agreement with the Navy Department, whereby the Department is to accept for trial a boat of the Lake type, which is to be purchased by the government if found satisfactory. The other seven of the eight submarines authorized in 1907 are being built by the Electric Boat Company, which therefore now has contracts to furnish eleven submarines for the navy.

The boat to be built by the American Laurenti Company is of a type already well tried in the Italian navy. That navy has for some years enjoyed the reputation of having developed to a high point of efficiency the use of submarine vessels. The first of Italy's modern submarines was the *Delfino*, and the data obtained in her gradual evolution formed the groundwork upon which Engineer Cesare Laurenti based the designs of his submarines of the *Glauco* type, which were launched in 1905, 1906, and 1907. These boats participated in the Italian naval maneuvers two years ago and demonstrated their value in a run from Venice to Taranto: they passed at depths of 10 to 20 meters through the narrow strait of St. Vito and reached the battleships without being detected by the torpedo boats acting as pickets. Besides the *Glauco* and *Squalo*, the Italian government has the *Narvalo*, the *Otario*, and the *Tricheco*, with which it has been conducting extensive maneuvers. Engineer Laurenti has under construction at the shipyard of the F.I.A.T. San Giorgio at Spezia submarines for the Italian Navy and for several other European navies. Those now building are 139 feet 4.5 inches length over all and displace 180 tons when fully laden at the surface; 230 tons when submerged. The Laurenti submarine for which the American contract has been let will be much larger than these, displacing 532 tons.

DECEMBER **THE NAVY** **1908**

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SENATOR HALE'S OPPORTUNITY

Senator Hale, for many years Chairman of the Senate Committee on Naval Affairs, retains the chairmanship of that Committee for another session of Congress. By reason of the death of the late Senator William B. Allison of Iowa the Senator from Maine will serve also as Acting Chairman of the Senate Appropriations Committee, the most important Committee in the upper branch of Congress. Had he been made chairman of the latter Committee, he would, by Senatorial custom, have relinquished his other chairmanship, which for many years has given him charge of the Naval Appropriation Bill on the floor of the Senate. But Senator Hale elected to remain in control of Naval Affairs, and his colleagues who are responsible for committee readjustments decided not to fill the existing vacancies until the organization of the Sixty-first Congress in March. Senator Hale is therefore a powerful factor in legislation this winter,—even more so than usual,—and in stronger position to insist on his views concerning the navy. It is to be hoped that with this branch of the service he will deal broad-mindedly. A strong building program is recommended by the General Board of the Navy, by the Department, and by the President. Other naval powers have large shipbuilding projects under way and are providing liberally for the all-big-gun single-caliber battleship. Coordination of naval administration, more colliers and auxiliaries, ample docking accommodations, efficient and economical navy yard facilities, an abundant stock of powder and ammunition of the latest and most improved character, advance-base material, and strategic naval bases are just as important as battleships.

Senator Hale, by reason of his long service as Chairman of the Naval Committee and as a member of the

Appropriations Committee, is familiar with the requirements and needs of the service. By reason of the fact that he now practically dominates both committees he occupies a position of peculiar responsibility, so far as the naval program is concerned. It is doubtful if the Speaker of the House himself could exercise such power for or against liberal naval appropriations as lies now in Senator Hale's hand. Not only is his power great, but the opportunity which he has to use it unusual. For not only will the present year demand larger appropriations for the increase of the naval establishment than ever before, but the question of the reorganization of the Department itself is one that requires deep knowledge of naval affairs and conscientious and courageous action on the part of Congress.

CONGRESS AND THE NAVY

Congress is largely responsible for many handicaps under which our navy has worked for a number of years, and the time has come when a keen and watchful interest should be manifested in the progress of naval legislation and the attitude of Congress toward everything affecting the serious welfare of the service. Popular sentiment demands liberal, fair, and, above all, thoroughly intelligent treatment of everything pertaining to the needs of the navy.

The development of the navy is a great national undertaking. It has often been said that it is the cheapest insurance the nation can purchase; but the insurance must insure. No greater mistake could be made than in appropriating for battleships, without simultaneously providing for the development of everything pertaining to the service in which those vessels are to engage in peace or war. Adequate docks, navy yards, naval bases, coaling stations, colliers, auxiliaries, high-powered guns of approved design, torpedoes, and personnel are all highly essential factors, none of which should be sacrificed. Public opinion advocates a strong and thoroughly efficient navy—and efficiency does not stop at powerful vessels and a splendid personnel. It expects Congress to perform its full duty; that is what Congress expects of the navy in a moment of national peril. If a battle were to be lost because a vessel lacks 50-caliber guns or could not find a coaling station, Congress would not accept such

excuses. In time of war, especially in an instance of military defeat, Congress would be extremely exacting with the fighting force. In time of peace those responsible ought to be equally exacting with themselves and grant fair play to those who have to fight our naval battles and want to be prepared for them.

BASES FOR NATIONAL DEFENCE

One of the difficulties in the way of adequate attention to naval legislation is the unfamiliarity of many members of Congress with naval matters and the needs of the service. Some of these needs have been urged so often that they have almost been abandoned in discouragement. The Pearl Harbor naval base is an example. Year after year, since as far back as 1884, military and naval experts have pointed out the vital importance of fortifying this base. Congress remained inactive until last winter, when pressure upon members from the Pacific Coast and from the Hawaiians themselves resulted in appropriations for a base that could have been used by the Atlantic battleship fleet last summer if the work had been authorized immediately after the acquisition of the islands. The primary purposes of that annexation were considerations of military necessity. A naval base at Pearl Harbor is vital to the success of any naval operations which the American Government may ever undertake in the Pacific, and this is the reason there was a Hawaiian problem for many years before the acquisition of the islands. The control of Pearl Harbor itself we have had since 1887; and, despite the long debates on the question of the solution of the political aspects of the Hawaiian problem, Pearl Harbor was almost forgotten by Congress, when it should have been constantly in mind as one of the principal factors in our scheme of national defence.

But Pearl Harbor is not the only item in the scheme of national defence. Rear Admiral Pillsbury, in his annual report, emphasizes the "lack of a defended naval base in either the insular possessions in the East or in the Caribbean Sea, the probable theatres of action in any war in which the navy might be called upon to engage." So important to the nation does he regard this matter that he urges that "all appropriations for new improvements at naval stations or for the defence of the coast

ports of the United States should give way to the establishment and the defence of naval bases in the Philippines, at Pearl Harbor, and at Guantanamo, for these bases are vital to our success in war." After the war with Spain an appropriation of \$250,000 was made for a dock at Guantanamo. The money was spent. The dock was started, but never completed, and Congress had a hole in the ground for its \$250,000. The fault was not with the Department, but with Congress, which did not grant funds with which to complete the project. Having made the original appropriation, it was the duty of Congress to recollect that fact, and if those responsible for the naval service failed to ask for more funds, it was then the business of those holding the purse strings to wonder what was the matter. Congress appropriated no more money for that particular project, and there the matter rests. It is difficult to understand this, when it is remembered that Congress seven years ago declared it to be the policy of this Government to create coaling and naval bases in Cuba. The Platt amendment, as the Act of March 2, 1901, was styled, provided, in Article VII:—

"That to enable the United States to maintain the independence of Cuba, and to protect the people thereof, as well as for its own defence, the Government of Cuba will sell or lease to the United States lands necessary for coaling or naval stations at certain specified points to be agreed upon with the President of the United States."

This was incorporated into the Cuban Constitution, and in 1903 President Roosevelt negotiated with the late President Palma an agreement for the lease to the United States of two sites for naval bases—one at Guantanamo on the south coast of Cuba, and the other at Bahia Honda on the northwestern coast. The leases for these sites have been executed, but adequate naval bases have not been established, because Congress has failed to authorize the project. Congress should provide for these projects by granting the necessary authority for the expenditure of a certain sum of money for the completion of the entire project, and then appropriating annually an amount to be spent each year under carefully prepared estimates. In the end the work would be completed earlier, in better shape, and at smaller expense than under the present method of irregular authorizations of only portions of a project.

LETTERS TO THE EDITOR

We ask our friends, in and out of the service, to favor us with letters for publication, discussing current naval topics. We should be glad to have their suggestions as to matters which we may take up to urge upon Congress or the Department.

Letters to THE NAVY will be printed, when deemed of general interest, whether or not they are in accord with THE NAVY'S views.

To the Editor of THE NAVY:—

In the November number of THE NAVY there is a letter signed "B. L. M." and headed "Navy Yard, Norfolk, Va.," presumably written by some one connected with the service, in which our naval policy is severely criticized. I beg to differ with "B. L. M."

In the first place, the entire letter is decidedly un-American, is extravagantly worded, and conditions are exaggerated. By being un-American I do not mean a lack of "goo-goo talk" and hip-hurrah for the U. S. N., but the criticizing both American and foreign designs from a *foreign* point of view. We are accused of "waiting" for other powers to show the way and then we are criticized when we take the lead. Are not foreign nations "waiting" when we better their all-big-gun ship designs by putting all the turrets in the middle line, just as we "waited" for them to lead in (quoting B. L. M.) "the all-big-gun ships, turbine engines, oil fuel, and drydock construction"? Is not Japan about to follow our middle line plan? Might we not say that England has been "waiting" for Germany and Brazil to adopt the cutting away of the superstructures to allow the beam turret guns to fire on the same broadside, by restricting her beam turret guns to one broadside and an arc of fire of less than 180° in the *Dreadnought* type? Or is this old plan used on our *Texas* and old *Maine* faulty for the same reason as our superposed turrets, thus leaving England immune from "bad leads"?

This is not a quibble. It is looking at *all* the facts from a fair point of view. "B. L. M." uses the word "foreign" but he must mean "British," for with the exception of England we have been just as quick to take up the all-big-gun ship, the turbine engine, and oil fuel as the rest of the powers. And what about our exclusive "haystack" mast, tested at Hampton Roads on the *Florida* last summer? Is that a "bad lead" too? Decidedly not. England is going to place this new fire-control type of mast on

all her *Dreadnoughts* beginning with the *Bellerophon*, and the other powers will probably follow, after "waiting" for us to get ahead and place it on all our available ships in commission besides those under construction.

The writer goes on to say that "not a single one of the criticisms established against the *North Dakota* at the Newport Conference applies to the *Dreadnought*, which was launched and in commission before the *North Dakota* was laid down." Well, what about the criticisms established against the *Dreadnought* and British ships contemporary with the *North Dakota*, which have been partially kept secret by the careful British Admiralty, that do not apply to the *North Dakota*—criticisms such as poor steering arrangements, masking of gun positions, etc.?

And are we the only people that make mistakes such as the failure to adopt the broad water line armor belt (a question still open to discussion) and the superposed turrets? England experimented with a tripod mast and after placing it on six big ships (of either the *Dreadnought* or semi-*Dreadnought* type) has now found it to be a failure. The writer says that we "are fully five years behind the English." After a close and careful comparison of United States and British battleships of the same date I think we easily hold our own (not to mention how much we surpass other nations). There is certainly no five years' difference. No nation has equalled or probably ever will equal the number and speed in construction of England's battleships, but America, at any rate, if not some other powers, too, has always kept up with her in up-to-dateness of design, with one exception. When England launched the *Dreadnought* she stole a march on the whole world, not even excepting Japan and Russia, from whose conflict the all-big-gun lesson was learned.

With regard to the tactical problem, I agree with THE NAVY's academic (and as I believe, practical) answer. I think "B. L. M." is wrong in applying sailing-day battle evolutions to a modern battle problem.

I do not wish to appear antagonistic towards "B. L. M.," but I do not believe in one-sided judgment. All these questions should be discussed from a broad point of view and it is my opinion that "our battleships are not all wrong" and that, "ship for ship, they equal the best."

Yours respectfully,

HAROLD M. KENNARD.

Brooklyn, N. Y.

January 7, 1909.

FOREIGN NAVAL CORRESPONDENCE

(Special Correspondence of THE NAVY)

GERMAN NAVAL CORRESPONDENCE

BERLIN, December 5, 1908.

The Hardcastle Torpedo.

Keen excitement has been aroused among German torpedo experts by the scanty details so far obtainable with reference to the Hardcastle improved torpedo, the invention of a British naval engineer-lieutenant. Compared with contemporary models, the German Schwarzkopf torpedo has been reckoned second to none. With a diameter of 19.5 inches, a gun-cotton charge of 220 pounds, and an effective range of 4000 yards at 20 knots, the Schwarzkopf is indeed a formidable weapon. Although its dimensions are not so great as the Bliss-Leavitt American model—21-inch diameter and carrying a charge of 300 pounds, the heaviest automobile torpedo ever constructed—its gyroscope arrangement and system of propulsion are considered by the Imperial authorities to be superior to the American. However this may be, the Hardcastle invention, if half the accounts of its achievements are authentic, is likely to put all existing automobile torpedoes completely in the shade. The following details of the new weapon are authoritative: a diameter of 21 inches, a bursting charge of 200 pounds, and an effective range of 7000 yards, which it covers at a speed exceeding 31 knots. No previous torpedo used in the British service had a greater diameter than 18 inches, so that the process of installing discharge tubes for the new weapon will be a lengthy and costly undertaking, provided the British Admiralty decide upon it.

The objection which naturally springs to the mind at the mention of this new weapon's enormous range is that the very length of its effective radius will render it useless, owing to the length of time taken to cover the maximum range; but a superficial comparison is enough to refute this contention. The latest British torpedo requires just over seven minutes to cover its maximum range of 5000 yards at 21 knots; the Hardcastle model will cover its 7000 yards in six and three-quarter minutes. Thus it will be seen that a ship can be attacked at a 40 per cent greater range and that the chance of hitting, so far as it is affected

by the time of the run, will be 3 per cent better than with the old torpedo at the shorter range.

This latest improvement in the torpedo, already a most potent factor in the intricate science of maritime warfare, is practically coincident with the appearance of the Cleland Davis torpedo gun on your side of the Atlantic; and the two coming together are likely to create something in the nature of a revolution so far as the potentiality of the torpedo is concerned. That, at least, is the consensus of professional opinion on this side. As your readers are doubtless well aware, the Imperial Marine relies on the torpedo as a weapon of attack and defence to a far greater degree than other contemporary navies, chiefly owing to the magnificent opportunities for torpedo work offered by the peculiar formation of the German coastline. So burning has the question become that expert naval opinion is now divided into two schools—one advocating implicit reliance on the big gun, mounted in large numbers on great armored ships; the other claiming as a more efficient system of defence the formation of numerous flotillas of destroyers and other ocean-going torpedo craft, armed with the most improved models of automobile torpedoes. Of course the authorities would be flying in the face of practical experience were they to hearken unreservedly and exclusively to the teachings of either of these schools. Under existing conditions the big gun has more to its credit than the torpedo, which latter weapon is still regarded more in the light of a coast defensive weapon than as an implement of attack for use on the high seas.

The tendency of naval opinion in Europe is to form into schools of thought, a system which not infrequently exerts a highly detrimental influence on the actual fighting power of the various navies. This peculiarity is particularly noticeable in France, where the "mosquito" school, having enjoyed an unprecedented run of popularity, has evolved countless tiny craft which have been proved to be not worth the cost of their upkeep. The same tendency is making itself felt in this country to-day. The cult of the small, light-armored cruiser, with limited coal capacity and a correspondingly limited steaming radius, still

flourishes, in spite of the fact that no substantial argument has yet been adduced in favor of its continued building; too weak to fight and too slow to run away, when the next war arrives they will offer an easy prey to the swift armored vessels which represent the scouting units of Germany's supposed future opponent.

To return to the torpedo question, however, I may mention that an opportunity was recently afforded me of conversing with an acknowledged German authority on the subject of the Cleland Davis torpedo gun. He had been reading a detailed account of this weapon's performances, as published in one of the Service periodicals, and was inclined to be sceptical about the marvellous results said to have been achieved during the trials at Washington and in Boston harbor. He said:—

"In the first place, let me tell you, without meaning any offence, that our people in Berlin know pretty well all that is to be known about that wonderful gun. They are in possession of the main details of and the principles governing its construction, and have found these to be at variance with the performances of the weapon as published in the American press and transmitted over here. When you tell us that this so-called torpedo gun recently hurled a projectile through seven inches of armor plate, then through a ten-foot backing of coal, and again through seven inches of armor on the other side, we cannot refrain from smiling. When you assert that this performance is verified beyond all reasonable doubt, we must perforce reply that some newspaper man has let his imagination run away with him, since the penetrative power ascribed to the torpedo gun is practically equal to that possessed by our latest model 11-inch turret weapons, and that inference is manifestly absurd, as you will yourself admit after a cursory survey of the facts. Now you will concede that a very fair guide to the penetrative power of a modern gun is furnished by its length; this is not, of course, a fixed rule, but it is a generally accepted one. The average length of the modern automobile torpedo is 22 feet, and a considerable amount of the space is set apart for the propelling machinery, the gyroscope adjustment, and other mechanical fittings; say, that half the space is thus taken up. Eleven feet must therefore represent the maximum length of the gun contained in the body of the torpedo; but when the breech mechanism, the powder chamber, and the length of the projectile itself are taken into consideration, the actual bore would be reduced to something like five or six feet at the outside. Now I put it to you, is it possible to give a projectile discharged from a howitzer weapon of this description sufficient properties of penetration to pierce fourteen inches of modern armor, to say nothing of the ten feet of coal? No doubt it would be possible to construct a torpedo, so-called, long enough to contain a gun of greater length in bore, but torpedoes of unwieldy dimensions could not be carried on board modern destroyers. When Americans are able to explain

away the elementary objections I have propounded, we on this side will listen with keen interest; but as the matter stands at present we must be pardoned if we take the lurid accounts of Commander Davis's new torpedo gun very much *cum grano salis*."

As my naval acquaintance has spoken for himself so plainly, his remarks stand in no need of supplementary comment on my part; but I would add that the author of this trenchant criticism is an officer of the Imperial Marine who has devoted much of his service to the science of the torpedo—a fact which may lend additional interest to the foregoing paragraph.

Germany and Great Britain.

If smoke is a certain indication of fire, there must be a good deal of subterranean heat in the relations between this country and Great Britain. It is generally supposed that war forms the sole topic of ward-room conversation in the German battle-fleets, as it likewise does among British naval officers. There is a growing feeling in both countries that an armed conflict is merely a question of time; that there is no room in the narrow seas for two formidable fighting fleets, and that a fierce struggle for command of the sea will be a feature of the world's history before 1915 is reached. That year, by the way, will see the German fleet at the zenith of its power, always providing the ever-growing uneasiness of the British public does not prematurely culminate in an exterminative campaign against the *Tenton* sea power. It is symptomatic of the alarm created in England by the growing proportions of this country's naval power that more than one usually sober publicist has advocated, in British journals of high standing, the policy of addressing an ultimatum to Berlin, to the effect that further expansion beyond that provided for in the amending German Naval Act of 1908 will be construed into a direct menace against Great Britain. This suggestion, eminently practicable though it may be, can hardly expect to find serious consideration in diplomatic circles. Nevertheless, forces which are at present ignored may help to precipitate deplorable eventualities entailing disastrous results to the peace of Europe. When, for example, the British taxpayer begins to realize an obvious truth, viz., that the naval shipbuilding policy of his country, with its inevitable strain on the national finances, is dictated, not from Westminster, but from the Wilhelmstrasse, things may happen. A preventive war is certainly not beyond the range of possibility. All these circumstances are fully realized in this country; but having set her hand to the plough, Germany is evidently

determined to pursue her course regardless of the dangers with which her path is strewn.

At the present moment an interesting discussion is afoot and being well ventilated in the Service journals both sides of the North Sea. For years past the invasion scare has been held up by zealous military reformers in England to stir the nation to a sense of its inadequate home defences against armed foreign irruption, and for years past the public has turned a deaf ear to the exhortations of soldiers, sailors, and civilians alike. As your readers are no doubt aware, Lord Roberts, England's veteran field marshal, has lately been playing a prominent part in the question of national defence. Last week he delivered a remarkable speech in the House of Lords on his pet subject, and succeeded in making out an excellent case for the prompt formation of a home army to number some million men. It is hardly necessary to remark that the deep-rooted repugnance to compulsory service which is a fundamental characteristic of the Anglo-Saxon race will strongly militate against the acceptance, by Englishmen, of Lord Roberts' recommendations.

Upon that aspect of the situation I do not propose to dilate; but as a German scheme of invasion would necessarily include important naval operations, it may not be uninteresting to briefly discuss the probable course these operations would take. First, there is no room for doubting that even by temporarily gaining the command of the sea,—i. e., in this case the North Sea,—the Germans could land a numerous expeditionary force on the English coast. Secondly, if this desideratum proved impossible owing to the numerical superiority of the British squadrons, then a strong military force could not be safely ferried across from Emden to (say) Yarmouth unless the weather conditions were particularly auspicious. A dense fog—no unusual meteorological condition in the North Sea—might enable the transports and their conveying vessels to slip past the British cruisers and destroyers, but the venture would be carried out under risks so appalling that the stoutest heart might well quail. The fog alternative may, therefore, be permanently dismissed from the calculation, and the problem thus resolves itself into an examination of the respective naval strength of the rival Powers in the near future. As most authorities are agreed that the pre-Dreadnought type of capital ship will count as a secondary unit in the next modern naval action, I shall confine the analysis to the 18,000-ton battleships and cruisers which represent the latest development in fighting craft. According to the present program, Germany's position in 1915 in *Dreadnoughts* will be as follows:

Vessel	Estimates	Laid down	Completed
<i>Nassau</i>	1906.	July, 1907.	October, 1909.
<i>Westfalen</i>	1906.	July, 1907.	November, 1909.
<i>Rheinland</i>	1907.	August, 1907.	February, 1910.
<i>Ersatz Baden</i>	1907.	August, 1907.	March, 1910.
<i>Cruiser "F"</i>	1907.	March, 1908.	August, 1910.
<i>E. Oldenburg</i>	1908.	October, 1908.	March, 1911.
<i>E. Siegfried</i>	1908.	October, 1908.	March, 1911.
<i>E. Beowulf</i>	1908.	October, 1908.	March, 1911.
<i>Cruiser "G"</i>	1908.	October, 1908.	March, 1911.

It should be mentioned that the laying-down dates of the four vessels authorized under this year's program are to some extent uncertain, as no positive information on this head can be obtained at the time of writing. There is reason to believe, however, that before this dispatch appears in print, the three *Ersatz* battleships and the 20,000-ton armored cruiser will be on the stocks. I have left the armored cruiser *Blücher* out of the above table, for reasons with which readers of THE NAVY are already well acquainted and which stand in no need of repetition. By March, 1911, therefore, or the early summer of the same year at latest, the nine vessels above mentioned should be in commission. Three additional battleships and one large armored cruiser are to be laid down each year from 1909 to 1911, inclusive, and from 1912 onwards one battleship and one armored cruiser each year are contemplated; but this program is liable to considerable increase if a recent report published by a well-informed Cologne newspaper is to be credited. This report is to the effect that the Wilhelmstrasse has already decided to introduce another navy bill in about two years' time, providing for the expansion of the navy on a much larger scale than is indicated in the 1908 program. But we had better keep within the known facts, and these inform us that by 1915 at least twenty-three German *Dreadnoughts* and *Invincibles* should be flying the pennant.

Unfortunately for the purposes of comparison, the British program is not known beyond that for 1908, so that we are only able to calculate with any certainty as far as the end of 1910, at which period fourteen *Dreadnoughts* and *Invincibles* will be ready, including the *Agamemnon* and *Lord Nelson*, which rank as *Dreadnoughts* by reason of their armament of four 12-inch and ten 9.2-inch guns. It is an open secret that the British Admiralty will ask for six *Dreadnoughts* next year, and in view of the agitation in favor of maintaining the fleet at a standard commensurate with the two next strongest navies and a 10 per cent margin over, there appears little likelihood of Germany wresting the much coveted prize of sea supremacy from Britannia for a time, at least.

The "Nassau" Type.

The following authentic particulars of the *Nassau* type of battleship, representing Germany's reply to the *Dreadnought*, are now published in a Service journal for the first time, and will be read with special interest by readers of THE NAVY, which, I believe, was the first naval publication to print details of the *Nassau*. The displacement of this vessel is 17,679 tons; length 472 feet, beam 82 feet 9 inches, and mean draught 26 feet; 25,000 will be the I. H. P., and the estimated speed is 19 knots. Protection is given by an end-to-end waterline belt of Krupp cemented armor, 6 inches thick forward, 12 inches thick amidship, and tapering to 4 inches aft. Above this is a second strake, 6 to 8 inches in thickness, and forming an armored battery for the secondary armament. Side armor is strengthened by a 3 to 4-inch curved deck descending at the sides to the lowest edge of the belt plates. The main armament of twelve 11-inch 50-caliber breechloaders is paired in barbettes 11 inches thick, the guns being worked by hydraulic power, with alternative electrical connections. There is, it appears, a secondary battery, and a very powerful one, consisting of twelve 6.7-inch rapid firers. In addition to the formidable array of heavy weapons comprising the main and secondary batteries, there will also be a number of light rapid firers and machine guns. The *Nassau* and her sister *Westfalen* will be driven by reciprocating engines and three propellers; the *Rheinland* and *Ersatz Baden* by turbines with four propellers. Boilers in all four vessels are of the Schulz type. In the later units of the 18,000-ton class improvements will no doubt take place, but the Imperial Marine Office is believed to have decided upon the main principles of armament and protection as embodied in the *Nassau* and her successors. Certainly these magnificent fighting craft compare favorably in hitting power with the British *Dreadnoughts* or the American *Delawares*.

H. C. B.

THE AUXILIARY FLEET

PARIS, December 15, 1908.

There is much discussion of armored ships, especially since the beginning of the era of *Dreadnoughts*. The naval programs of the powers enumerate the qualities that these ships are to possess; being occupied especially, and with reason, with the armament of large guns, upon which depends in great part the success or failure of the vessels as fighting units. Every year, the parliaments of the naval powers resound with debates as to the design to be placed on the stocks and the possible improvements in these great ships.

But it is not enough to form a main force of battleships: that main force is destined to move and to fight on a field of which the boundaries enlarge from day to day. In order to move and to fight, it is necessary to have coal, ammunition, means of repairing any serious damage sustained during battle or while on a voyage. Besides this, the squadron will not always have within reach bases of supply; and, if it remain near these bases, it may miss an opportunity of meeting the adversary or of pursuing him to gain a victory. This was shown several times during the Russo-Japanese war. Vessels short of coal or ammunition must have abandoned a pursuit, which would have changed victory into veritable disaster. Others, without the means of renewing their supplies, fought to the end with desperation. That was the case with the *Svettlana*. One morning, at daybreak, that cruiser, having but a hundred rounds of ammunition left in its magazines, found itself in the presence of two of the enemy, the *Nilaka* and the *Ottawa*. Captain Schéine called a council of war; it was decided to fight till the magazines were empty, then to sink the ship. After an hour of firing, the magazines were empty, the hull was riddled; the two disabled engines stopped. The survivors of the ship's company sprang into the sea.

In the time of sails, captains had no problem of this sort. Ships and frigates took in their holds six months' provisions and other supplies; then they kept the sea for six months, searching for the enemy, pursuing him, and hunting for the scattered vessels that had escaped disaster. At that time, powder, shell, ropes, pulleys—nothing was complicated. Leaks were stopped with wood and tarred canvas. The copper sheathing of frigates, while increasing their speed, allowed them to sail a long while without having to be docked, even in tropical countries, where the bottoms fouled much more rapidly. Besides, ingenious old sailors had invented the *goret*, a kind of framework supporting brushes of long, loosely-laid ropes, which, being passed under the ship, was allowed to drag along the keel; the friction dislodged the seaweed and barnacles.

Our present ships, complicated as they are, demand constant attention and some care every moment. Repairs to engines, screws, rudder, are often serious enough to require the use of powerful tools, hydraulic machinery, large forges, and foundries that are not to be found on board battleships.

In time of war, it is necessary to avoid, as far as possible, the laying up of battleships in dockyards. Hence the valuable, if not indispensable, rôle of the fleet auxiliary, each one of the parts of the fleet having a particular function,—repair, revictualling, hospital service, etc. In

order that the fleet shall be really useful, it is necessary to organize it in time of peace and to provide it with all needed equipment, in order that it may be immediately able to fill its rôle at the opening of hostilities, without further preparation. Several elements should enter into its composition:

1. *Scouts*.—The scouts are the eyes of the commander-in-chief. Certain powers employ as scouts for the battleships special small protected cruisers; the United States has the *Chester* class, of 3750 tons; Germany, the *Bremen* class, of 3300 tons; England, the *Boudicca* class, of 3200 tons. However, Lord Brassey thinks that the rôle could be well filled by fast merchant steamers. In this work, in fact, great speed is the necessary thing, because such vessels, on account of lack of armor protection and their vulnerable vertical engines, would not be able to face rapid-fire artillery, not even that of a destroyer. They would reply only in case of surprise; and, as a general rule, they look for their safety in flight. Their speed serves them in place of armor. Therefore, there is need of making careful selection and of discarding resolutely for this service all steamers whose inadequate speed would create only embarrassment for the commander-in-chief.

2. *Troops*.—In war there will certainly be combined operations—vessels and landing parties. Such operations, which would be most effective in continental wars, would oblige the enemy to keep in reserve part of its land forces, to force back to the sea the forces that the enemy might have landed. It is necessary, then, to have troopships for transporting bodies of troops to a point easy of access and little, or not at all, defended. These troopships would naturally be provided with flat lighter-barges intended to facilitate the work and to allow of approaching as near the shore as possible.

3. *Coal and Oil*.—Battleships are great consumers of coal. They must be recoaled at sea from lighters, without looking for the shelter of a port or an island. The transports charged with this duty must be furnished with apparatus for rapid transfer of supplies. The unfortunate *Rodjestvenski* would never have reached the Yellow Sea unless reasonably well equipped with stores. Thus the conclusion is inevitable that it is better to divide this work among a number of colliers of small tonnage, employing, for instance, ten of average size rather than five large ones, in order to be able to supply a number of vessels at a time and to render less serious the loss of these auxiliaries in case of wreck or capture.

4. *Ammunition*.—The rapid firing of the present guns

quickly empties the magazines. In an hour, large guns may be reduced to uselessness. In that condition, a vessel could be easily captured. Such a contingency occupied the attention of the French Navy as early as 1897, at which time it fitted up two large transports, the *Vinh-Long* and the *Bien-Hoa*, as ammunition supply ships.

5. *Repair Ships*.—The repair ships are provided with foundries and workshops for large repairs. At present, each of the powers possesses at least one of these useful vessels. The French navy formerly had the *Foudre*, which has been transformed into a transport for torpedo boats. It was the *Foudre* that transported to Saigon the submarines intended for the defence of Cape Saint Jacques (at the entrance of the Saigon River).

6. *Hospital Ships*.—On board modern battleships, it is difficult to find place for the wounded, which in any case is only temporary. After a combat, it is necessary to disembark all the wounded that can be transferred, and a hospital ship is needed. This vessel would have another use: in case of epidemic, it would be best to remove the sick and to isolate them in accordance with the accepted rules of hygiene.

7. *Cable ships*.—During the war with Spain, the Americans proved the usefulness of special vessels for the laying of cables. Much was done, with slight means, in particularly difficult places. Most of the Antilles, for instance, have the form of cones, and near the coast the telegraph cables rise from great depths. This increases considerably the difficulty of handling cables, of grappling, and of raising and cutting. In such cases, cable ships are most necessary.

8. *Distilling Ships*.—Some would add distilling ships to the list. To-day, however, all battleships distil for themselves the water needed for their use and for replacing the loss from the engines.

These are the types of ships needed to constitute the auxiliary fleet. It would seem needless to give to these vessels (save to the scouts) the great speed that would allow of their accompanying the squadron everywhere. Speed is costly and raises considerably the price of the units. For example, say that a knot added to the speed of the cruiser *Ernest Renan* increases the displacement by 1100 tons, the power of the engines by 8500 h. p., and costs three million francs. It is prudent to follow the example of Italy, to be content with 16 knots and to employ the method of ocean rendezvous, at certain dates, for these useful auxiliaries.

D.

THE NAVAL BUILDING PROGRAM FOR 1909-1910

THE NAVAL APPROPRIATION BILL

Congress was asked to make provision, in the Naval Appropriation Bill for the fiscal year ending June 30, 1910, which must be passed before the adjournment of Congress on March 3, 1909, for the construction of the following vessels:—

- Four first-class battleships of improved *Florida* type.
- Four scout cruisers of the *Salem* type.
- Ten torpedo-boat destroyers.
- Four submarine boats.
- Three 14-knot fleet colliers.
- One repair ship.
- One ammunition ship.
- Two mine-laying ships.

The total number of units asked for under the 1909-10 shipbuilding program is 29 vessels; the number under the 1908-09 program as proposed was 30 vessels. Except that 3 colliers are asked for this year as against 4 last year, the two programs are the same, both in the number of vessels of each type and in their general characteristics.

The hearings before the House Naval Committee and the preliminary consideration of the estimates developed unofficial expressions from members of the Committee indicating that probably not more than two battleships will be authorized. This would be in accordance with the Allison compromise of last winter, which closed the four-battleship fight in the Senate with a definite promise of two additional battleships annually. There was no official expression to this effect and no attempt was made to adopt anything like a permanent shipbuilding policy, but the semi-official character of the Allison pledge gives reason to believe it will be kept. The naval increase recommendations made this year are prudent and reasonable. Great Britain, Japan, Germany, and France are now building all-big-gun vessels of an improved *Dreadnought* type. We must lay down at least four, and the appropriation should be granted by Congress with some regard to the tactical value of the squadrons which the ships are to form. The four of these vessels in hand will constitute one division of such ships, and the opinion of the General Board of the Navy Department is that another such division should be immediately authorized. Such an authorization would enable the

United States Navy to maintain its present position of second place among the navies of the world in tonnage and gun-power. Unless the recommendations of the General Board are approved by Congress, the United States will within the next few years be passed by Germany; and France, by completing the six battleships she now has on the stocks and laying down several more, may regain her former place.

The House Committee on Naval Affairs has recommended that two ships of the *North Dakota* type be authorized, instead of the four asked for by the Navy Department, and five torpedo-boat destroyers, instead of ten. The committee approved the estimates for the three colliers and the four submarines; while the two mine-laying ships, one ammunition ship, and one repair ship were not allowed.

The program for new construction as recommended by the House Committee is as follows:—

Two battleships.....	\$19,000,000
Five torpedo-boat destroyers.....	4,000,000
Three colliers.....	2,800,000
Four submarines.....	2,000,000
Three subsurface boats.....	445,000

Total for new construction.....\$28,245,000

ANNUAL REPORT OF THE SECRETARY OF THE NAVY

Discussing the recommendations submitted, former Secretary Metcalf says, in his annual report:—

"The battleships should be of the heavy single caliber, all-big-gun type, and it is deemed desirable that as soon as practicable a squadron of eight battleships of this type should be completed. The *North Dakota*, *Delaware*, *Florida*, and *Utah* will form the first division of this squadron, and the four proposed vessels will form the second division. All should have the same tactical qualities (speed and turning circles).

"The number of scout cruisers in the navy should be one for each battleship. In order to bring the number of scout cruisers to this equality it will be necessary to provide for a greater number than four for the coming year, but recognizing economic reasons which render it desirable to make a building programme, as nearly as may be, continuous and uniform, and also because of the changes in types which naval progress invariably occa-

sions, it is recommended that only four scout cruisers be authorized this year. This number, however, should be regarded as the minimum. These scout cruisers should be of the same general type as the *Salem*, but should carry oil fuel to increase the steaming radius in addition to the same amount of coal carried by that vessel.

"It is considered that there should be a ratio of four destroyers for each battleship, and this opinion is in conformity with the practice and policy of certain foreign navies. The Department, therefore, recommends that at least ten destroyers be authorized each year until the above ratio shall have been reached. These vessels should be of the same general type as those contracted for.

"The Department believes that the policy of building submarines for coast and harbor defense should be continued.

"The three colliers recommended should be of the same type as the 14-knot large colliers authorized at the last session of Congress, but should have a sustained sea speed of 14 knots. On account of the increased size of battleships and the greater amount of coal carried, it is deemed desirable that the cargo capacity of colliers intended to supply a division should not be less than 8000 tons. The machinery should be placed in the stern in order that the bunkers may be continuous, thus giving greater rapidity and facilities for coaling.

"Experience with a repair ship in the Atlantic Fleet (*Panther*) has shown conclusively the great value of this auxiliary, and the Department is of the opinion that this class of vessel should be provided for. The ship should be of not less than 10,000 tons displacement and capable of a sustained sea speed of 14 knots, which is equal to that of the average battleship.

"The ammunition ship should be of 6000 tons cargo capacity, fitted to carry in safety all classes of ammunition and capable of sustaining a sea speed of 14 knots. The development of rapid firing and the consequent speedy exhaustion of ammunition in action make ammunition supply a vital question in the conduct of a naval campaign. The means of replenishing magazines after an engagement should, therefore, always be close at hand.

"Specially fitted ships are necessary for mine laying as adjuncts to the battle fleet; these vessels should carry large numbers of mines and have ample facilities for rapid work in laying them. Two cruisers of sufficient speed and capacity could be fitted and equipped for this work, provided the money is appropriated."

The total cost of the building program thus proposed would be approximately \$67,520,000. The four battleships will cost approximately \$5,500,000 each; the four scouts \$2,500,000 each; the ten destroyers \$850,000 each; the four submarines \$380,000 each; the ammunition ship \$1,750,000; the repair ship \$2,000,000; the conversion and equipment as mine-laying ships of two cruisers now on the Navy List, \$250,000 each, and the three fleet colliers \$1,750,000 each. Authority for the construction of

these vessels and an appropriation to cover the work that can be done on them during the fiscal year ending June 30, 1910, is all that is sought this winter, the balance of the money to be appropriated annually as needed. It is understood to be the intention to transform the *San Francisco* and the *Baltimore* into mine-laying vessels, one for use on the Pacific Coast; the other on the Atlantic.

THE NEEDS OF THE NAVY

In the annual estimates, which were transmitted to Congress on December 7 by the Secretary of the Treasury, setting forth the appropriations required for the fiscal year ending June 30, 1910, the total amount asked for the Navy Department is \$137,510,387.99, of which amount the estimate for the naval establishment proper is \$134,393,447.99, the remainder being for salaries and expenses of the Navy Department and certain permanent annual appropriations. Included in the estimate of \$134,393,447.99 for the naval establishment proper is an aggregate of \$12,545,975.52 for public works of various kinds, the principal items of which include \$9,811,730 for navy yards and stations, \$1,505,500 for barracks and quarters for the Marine Corps, \$404,325 for naval magazines under the Bureau of Ordnance, and \$663,420.52 for naval training stations under the Bureau of Navigation.

The total estimate for the naval establishment proper, excluding the item of \$12,545,975.52 for public works, is \$121,847,472.47. The total of \$137,510,387.99 is obtained by adding to the \$134,393,447.99, required for the establishment proper, the sums of \$836,940 for the salaries and expenses of the Navy Department, and \$2,280,000 for permanent annual appropriations, such as \$1,200,000 for the clothing and small stores fund, and \$500,000 each for the naval hospital and the pay of the Navy and the Marine Corps funds.

The routine departmental expenses and these permanent annual appropriations coming under the jurisdiction of other appropriation bills, the estimates with which the House Naval Committee has to do in connection with the formulation of the Naval Appropriation Bill are included in the total of \$134,393,447.99. In Secretary Cortelyou's recapitulation by subdivisions of the government, he sets down \$133,160,401.46 as total of appropriations for 1909 for the Navy Department. This included deficiencies, miscellaneous and permanent annual appropriations. The actual amount appropriated for 1909 for the naval establishment proper in the Naval Appropriation Act of last May was \$122,662,485.47. The estimates of the Department last winter for the current fiscal year were \$125,041,349.80

for the naval establishment proper. The amount carried by the Naval Bill reported to the House last April was \$103,967,518.43. This was increased in the House to \$105,405,768.43, and the Senate Naval Committee increased the total to \$112,984,799.88. Nearly \$10,000,000 was added in the Senate, so that when the measure left the conferees of the Senate and House it was found that the total amount of increase by Senate amendments agreed to in conference was over \$17,000,000, and the total was over \$122,000,000.

The largest items in the estimates for 1910 are \$33,197,457 for "Pay of the Navy"; \$23,840,790 for "Increase of the Navy"; \$4,349,910.28 for "Pay of the Marine Corps"; \$3,156,736 for provisions, clothing, and miscellaneous for the Marine Corps; \$1,291,620 for outfits for naval apprentices; \$7,020,405.79 for ordnance and ordnance stores; \$1,253,900 for new batteries for certain vessels; \$1,112,450 for modernizing turrets of ships; \$5,215,100 for reserve ammunition; \$1,250,000 for reserve torpedoes and appliances; \$3,936,500 for equipment; \$5,000,000 for coal and its transportation; \$1,500,000 for maintenance of yards and docks; \$7,041,507.31 for provisions; \$8,840,713 for construction and repair; \$7,256,000 for steam machinery; and \$936,800 for transportation, recruiting, and contingent expenses under the Bureau of Navigation.

The sum of \$23,840,790 asked under the head of "Increase of the Navy" relates wholly to ships already authorized and has nothing to do with new construction to be authorized during the present session of Congress. The practice was established last May of making appropriations, in the "authorizing" act, toward the immediate construction of new "capital" ships thus granted by Congress, instead of authorizing the vessels one year and making the first money grant for them the following winter. It is to be hoped that in providing this year for the construction of new vessels funds will be granted so that the ships can be started during the coming fiscal year. The sums asked for "Increase of the Navy" in 1910 estimates, in contrast with the sums appropriated by the Act of May 13, 1908, for the fiscal year 1909, are as follows:—

	Estimates for 1910	Appropriated for 1909
For hulls and outfits of vessels and steam machinery, heretofore authorized.....	\$14,540,790	\$12,832,962
For armor and armament for vessels heretofore authorized.....	5,000,000	11,000,000
Toward completing the equipment outfit of new vessels authorized.....	400,000	400,000
On account of submarine torpedo boats heretofore authorized.....	1,800,000	3,000,000
On account of the two fleet colliers authorized last May.....	2,100,000	1,500,000

Total "Increase of the Navy."

	Estimates	Appropriations
For 1910	\$23,840,790	
For 1909	17,232,962	\$28,729,962
For 1908	22,213,915	23,639,515
For 1907	31,831,829	33,475,529
For 1906		49,355,831

These figures show that the estimates for "Increase of the Navy"—that is, appropriations for ships authorized at the session immediately preceding the transmittal of the estimates—have been increased in the appropriations based upon those estimates. This is as it should be, because there should be a fixed policy of granting the money required each year for the commencement of work upon vessels authorized in the act of that year wholly apart from the appropriations made for construction that is already in hand.

THE PRESIDENT'S MESSAGE.

In his annual message President Roosevelt urges the fortification of Pearl Harbor, the granting of the four battleships asked, the abolition of the present bureau system of the Navy Department, the treatment of the navy as a purely military organization, promotion by selection or exclusion, instead of by seniority as at present, and the graduation of midshipmen as ensigns.

Concerning the necessity of fortifying Pearl Harbor, the President says:—

"We have begun to improve Pearl Harbor for a naval base and to provide the necessary military fortifications for the protection of the islands, but I can not too strongly emphasize the need of appropriations for these purposes of such an amount as will within the shortest possible time make those islands practically impregnable. It is useless to develop the industrial conditions of the islands and establish there bases of supply for our naval and merchant fleets unless we insure, as far as human ingenuity can, their safety from foreign seizure.

"One thing to be remembered with all our fortifications is that it is almost useless to make them impregnable from the sea if they are left open to land attack. This is true even of our own coast, but it is doubly true of our insular possessions. In Hawaii, for instance, it is worse than useless to establish a naval station unless we establish it behind fortifications so strong that no landing force can take them save by regular and long-continued siege operations."

Concerning the needs of the navy in general the President says:—

"I approve the recommendations of the General Board for the increase of the Navy, calling especial attention

to the need of additional destroyers and colliers, and above all, of the four battleships. It is desirable to complete as soon as possible a squadron of eight battleships of the best existing type. The *North Dakota*, *Delaware*, *Florida*, and *Utah* will form the first division of this squadron. The four vessels proposed will form the second division. It will be an improvement on the first, the ships being of the heavy, single-caliber, all-big-gun type. All the vessels should have the same tactical qualities, that is, speed and turning circle, and as near as possible these tactical qualities should be the same as in the four vessels before named now being built.

"I most earnestly recommend that the General Board be by law turned into a General Staff. There is literally no excuse whatever for continuing the present bureau organization of the Navy. The Navy should be treated as a purely military organization, and everything should be subordinated to the one object of securing military efficiency. Such military efficiency can only be guaranteed in time of war if there is the most thorough previous preparation in time of peace—a preparation, I may add, which will in all probability prevent any need of war. The Secretary must be supreme, and he should have as his official advisers a body of line officers who should themselves have the power to pass upon and coordinate all the work and all the proposals of the several bureaus.

A system of promotion by merit, either by selection or by exclusion, or by both processes, should be introduced. It is out of the question, if the present principle of promotion by mere seniority is kept, to expect to get the best results from the higher officers. Our men come too old, and stay for too short a time, in the high command positions."

FOREIGN SHIPBUILDING PROGRAMS

In his annual report the former Secretary of the Navy, Mr. Metcalf, gives a synopsis based on information furnished him by the Office of Naval Intelligence regarding the principal foreign shipbuilding programs. He points out that during the past year the policy of building battleships of large displacement and high speed, with main battery guns of the largest caliber, has been universally continued and the foreign navies that are now constructing or have authorized the construction of such vessels include England, France, Germany, Russia, Italy, Japan, Brazil, and the Argentine Republic. The report says:—

"The displacements of the later ships range from 19,000 to 22,000 tons at designed displacement; the

The President says also:—

"Nothing better for the Navy from every standpoint has ever occurred than the cruise of the battle fleet around the world. The improvement of the ships in every way has been extraordinary, and they have gained far more experience in battle tactics than they would have gained if they had stayed in the Atlantic waters. The American people have cause for profound gratification, both in view of the excellent condition of the fleet as shown by this cruise, and in view of the improvement the cruise has worked in this already high condition. I do not believe that there is any other service in the world in which the average of character and efficiency in the enlisted men is as high as is now the case in our own. I believe that the same statement can be made as to our officers, taken as a whole; but there must be a reservation made in regard to those in the highest ranks—as to which I have already spoken—and in regard to those who have just entered the service; because we do not now get full benefit from our excellent naval school at Annapolis. It is absurd not to graduate midshipmen as ensigns; to keep them for two years in such an anomalous position as at present the law requires is detrimental to them and to the service. In the academy itself, every first classman should be required in turn to serve as petty officer and officer; his ability to discharge his duties as such should be a prerequisite to his going into the line, and his success in commanding should largely determine his standing at graduation. The Board of Visitors should be appointed in January, and each member should be required to give at least six days' service, only from one to three days' to be performed during June week, which is the least desirable time for the board to be at Annapolis so far as benefiting the navy by their observations is concerned."

number of large-caliber guns mounted varies from 10 to 12; and the torpedo-defense or lesser batteries consist of calibers ranging from 4 to 6 inches. While England, Germany, and Japan are also building so-called armored cruisers of the *Invincible* type, mounting 12-inch guns (11-inch or 12-inch in Germany), these are really fast battleships in which protection has been in a measure sacrificed to speed.

"In addition to these fighting ships intended for the line of battle, all navies are building scouts, or unarmored cruisers, of displacements ranging from 3500 to 5000 tons, lightly armed, but of very high speed, 23 to 26 knots, as well as torpedo craft, which term includes destroyers, torpedo boats, and submarines.

"With torpedo craft the tendency continues to increase displacement and speed; the marked increase of speed having been gained chiefly through the introduction of oil

fuel and turbine machinery. England is now building a number of destroyers of more than 900 tons displacement, with 33 to 35 knots speed; besides a new type of about 1,000 tons, which will have considerably less speed, about 27 knots, but with much improved seagoing qualities.

Germany is building destroyers of about 650 tons displacement and 30 to 33 knots speed; and Japan is reported to be building a destroyer of 1,100 tons and 33 knots speed.

Submarines are being built in all countries, and here again the tendency is toward increase in size and speed.

Cruisers, other than scouts or of small type intended for police and river service, are not found in any building programme, although it is currently reported that the English intend to build cruisers of about 8,000 to 10,000 tons.

The rapidity with which vessels are built in England and Germany is most noteworthy. In England the keel of the battleship *Bellerophon* (18,500 tons) was laid December 3, 1906; the ship was launched July 27, 1907; and the steam and gun trials were begun in October and are now approaching completion. The *Bellerophon* is to be commissioned in December. In Germany the keel of the *Nassau* (18,000 tons) was laid July 22, 1907; the launching occurred March 7, 1908; and the ship is to be completed by October, 1909. And these illustrations are not exceptional cases.

"In 1911 England will have 8 *Dreadnoughts* and 4 *Invincibles*, besides those which may be authorized this winter; and Germany 10 *Nassaus* and 4 battleship cruisers."

"ENGLAND.

"The programme for 1908-09 includes 1 battleship; 1 armored cruiser of the *Invincible* type; 6 scouts of 25 knots speed; 16 torpedo-boat destroyers; and a number of submarines.

"The amount appropriated for new construction is \$36,718,925.

"The *Indomitable*, of the *Invincible* type, during a voyage from Quebec to Cowes developed remarkable speed, reported as follows:

"Highest speed, average for four hours, 26.4 knots; average speed land to land, 25.13 knots; average speed Quebec to Cowes (including St. Lawrence River), 21.4 knots.

"The characteristics of the new battleship, provisionally named the *Foudroyant*, whose keel is to be laid at the New Year, have not yet been made public. The press predicts for this vessel a new 13.5-inch gun, instead of the new 50-caliber 12-inch mounted in the *St. Vincent* class, but there seems to be as yet no official authority for this prediction.

"The torpedo-boat destroyer *Swift* has had some preliminary trials, during which a speed of 38 knots was attained. This vessel is of an experimental type, being intended to serve as mother ship for destroyers or as a scout.

"FRANCE.

"No new battleships were authorized in the last budget, although the superior council recommended 6 large ships for 1909-10. There were authorized 10 new destroyers and 3 submarines. The appropriation for new construction including vessels already building amounts to \$21,000,000.

"GERMANY.

"The amended 'fleet law' by decreasing the age limit of battleships to twenty years increases the yearly number of ships to be added to the fleet, and, accordingly, 3 battleships have been laid down this year instead of 2, in addition to 1 large armored cruiser, 2 scouts, 12 destroyers, and a number of submarines. By this amended programme the German fleet will in 1917 comprise 38 modern battleships, 20 large armored cruisers, 38 small cruisers or scouts, 144 torpedo boats and destroyers, and a number of submarines.

"The amount appropriated this year for new construction is approximately \$27,000,000.

"JAPAN.

"It is probable that up to the present no new armored ships have been laid down this year. It is reported that Japan intended to begin last spring the construction of 2 large battleships of 21,800 tons, but it is now understood that the keels will be laid before the new year. It is also reported that 2 very large armored cruisers (fast battleships), mounting 12-inch guns, are to be built, and that a large destroyer of 1,100 tons and 35 knots speed is building. Submarines are in process of construction in Japan as well as in England.

"RUSSIA.

"The programme for the rebuilding of the fleet has not been definitely announced. The Russian admiralty has, however, recently received proposals and bids from home and foreign shipbuilders for the designs and construction of 4 large battleships of about 22,000 tons and 21½ knots speed. It is stipulated that these vessels shall be built in Russia and of Russian material; the successful bidder to superintend the work and furnish the technical experts.

"ITALY.

"This year's programme provides for a new battleship of about 19,000 tons (a great increase for Italian ships), a scout, and a submarine, besides auxiliary vessels.

"SPAIN.

"The renovating of the Spanish fleet has been undertaken, and bids for new construction have been received from numerous foreign firms. The programme extends over a period of eight years and includes 3 battleships of about 15,000 tons, 3 destroyers, 24 torpedo boats, and several gunboats. For this work, and for the renovation of the dockyard plants, \$38,000,000 have been appropriated.

"ARGENTINA.

"After prolonged discussion in the Argentine Congress there has been finally voted the sum of about \$55,000,000 for the increase of the fleet. The building programme has not been announced, but the press reports that negotiations for the construction of battleships of the largest type have been begun.

"BRAZIL.

"No additions have been made to the Brazilian programme as reported last year. One of the three battleships therein indicated has been launched in Great Britain, and a second is about to be launched. The scouts and destroyers are in various stages of construction and completion."

THE FLEETS OF THE MARITIME POWERS

SEA STRENGTH OF THE LEADING POWERS

The following information has been compiled by the Naval Intelligence Office, under date of November 1, 1908. The vessels not included in the tables are those over 20 years old, unless they have been reconstructed and rearmament since 1900; transports, colliers, repair ships, converted merchant vessels, or any other auxiliaries; vessels of less than 1000 tons, except torpedo craft; torpedo craft of less than 50 tons. The table showing the vessels building or authorized includes those authorized but not yet laid down, as well as those actually under construction. In making comparisons of naval strength, and particularly of naval increase, the fact should be considered that the rapidity of construction varies materially in different countries. In England, Germany, and Japan, battleships and armored cruisers are completed in two to three years; in the United States, in from three to four years; and in France, Italy, and Russia not less than four years are required.

Vessels built.

Country	Battleships	Armored cruisers	Cruisers	Destroyers	Torpedo boats	Submarines	Coast defence vessels
England	(a) 52	35	(b) 86	144	48	44	0
France	18	21	26	44	260	44	11
United States	25	12	39	10	32	12	11
Germany	22	8	37	64	42	2	8
Japan	11	11	19	55	61	10	3
Russia	5	5	15	93	57	25	4
Italy	11	6	10	17	61	5	0
Austria	3	3	5	6	35	0	6

(a) Battleships, first class, are those of (about) 10,000 tons or more displacement.

(b) Includes all unarmored cruising vessels above 1,000 tons displacement.

(c) Includes smaller battleships and monitors. No more vessels of this class are being proposed or built by the great powers.

Vessels building or authorized.

Country	Battleships	Armored cruisers	Cruisers	Destroyers	Torpedo boats	Submarines
England	07	4	7	25	23	26
France	6	2	0	30	10	55
United States	6	0	0	15	0	15
Germany	09	3	6	21	0	4
Japan	4	02	3	4	0	2
Russia	8	2	0	4	0	6
Italy	6	4	1	0	2	12
Austria	3	0	1	6	10	6
Brazil	3	0	2	10	0	3

a England has no continuing shipbuilding policy, but usually lays down each year four armored ships with a proportional number of smaller vessels, although during the current year this number was reduced to two armored vessels.

b Germany has a continuing shipbuilding policy, authorized by the Reichstag, and extending to the year 1917. This authorization provides for the building between 1907 and 1917 of 16 battleships, 12 armored cruisers, 22 smaller cruisers, and 132 torpedo vessels.

c Reported that two more are authorized.

RELATIVE ORDER OF WARSHIP TONNAGE

The present warship tonnage of the principal powers as given by the Office of Naval Intelligence is as follows:—

	Present tonnage
Great Britain	1,660,005
United States	685,426
France	628,882
Germany	524,573
Japan	371,891
Russia	240,943
Italy	220,458
Austria	114,250

PERSONNEL OF THE WORLD'S FLEETS

Under date of November 1 the Office of Naval Intelligence has compiled statistics showing the strength of the personnel of the principal naval powers, as shown in the accompanying table.

From this table it is evident at a glance that the United States Navy is weakest in flag officers, captains, and commanders, especially the two former, and every one familiar with the routine operations of the Bureau of Navigation is aware of the difficulty growing out of the shortage of officers in the higher grades. With 53 flag officers, Japan, which at present ranks fifth in warship tonnage, has as many in that grade as the United States and Germany combined, although these nations rank ahead of Japan in tonnage.

	England	France	Germany	Japan	United States
Flag officers.....	96	45	33	53	*18
Captains and commanders.....	610	355	256	250	*182
Other line officers and engineers ^b	3,268	1,602	1,719	1,790	795
Medical officers.....	501	377	210	318	286
Pay officers.....	571	201	205	277	281
Warrant officers.....	*1,987	*1,798	2,036	1,404	604
Enlisted men.....	98,319	44,577	47,286	41,906	42,400
Marine officers.....	320		103		268
Enlisted men (marines).....	17,844		1,365		9,290

^a The United States now has, in addition, temporarily, as extra numbers, due to promotion for war service, 6 flag officers, 13 captains, to commanders, 12 lieutenant-commanders, and 6 lieutenants.

^b Does not include midshipmen.

^c Includes pharmacists and apothecaries.

^d Includes chief gunners, chief boatswains, chief signal boatswains, chief carpenters, chief artificer engineers, chief schoolmasters, and head schoolmasters.

^e Includes adjutants, maitres and premier maitres of all branches.

^f Includes 1365 men of the naval infantry.

THE SAMPSON MEMORIAL WINDOW

The Memorial Window placed in the Chapel of the United States Naval Academy at Annapolis by the officers of the United States Navy, as a memorial to the late Rear Admiral William T. Sampson, was unveiled with impressive exercises on November 16, 1908. Rear Admiral Francis J. Higginson, Chairman of the Sampson Memorial Committee, first turned the window over to the Naval Academy; Captain Charles J. Badger, Superintendent, received it, and Rear Admiral Alfred T. Mahan, in an eloquent address, spoke of Sampson's services to the country and pointed out the lessons of his life. His closing words, full of truth and nothing but truth, will long be remembered. Speaking of Sampson, he said: "The navy appreciates him—the country will."

The window was designed and executed by the Tiffany studios of New York, under the personal supervision of Mr. Louis C. Tiffany. It occupies a space above the gallery in the chapel, and consists of three large panels, with seven smaller panels and traceried openings above, completing the architectural contour. The large central panel contains the main subject of the memorial, "Peace." The design shows a sea on which floats a ship, hung with garlands of flowers and surrounded by flying doves. In the bow stands a majestic winged angel figure, robed in scarlet and white and girt with golden armor. Perched

upon her right hand, held aloft, is a white dove, a branch of laurel in its bill; and in her left hand she holds a sword in rest. Above her head is a golden aureole.

Below the main figure panel is a smaller one, in which, resting on two dolphins, is a shield of blue, bearing two stars, the official emblem of naval rank and honor. A tablet just above the shield bears the legend, "Sampson—Santiago." The central panel is set in an ornamental border and the side panels are treated in an ornamental design in harmony. The seven small panels in the upper portion of the window bear branches of laurel.

The color is rich and brilliant throughout and in perfect accord with the spirit of the design. The glass of which the window is composed was made especially for the work. It is of unusual depth and quality of tone and has been used with utmost care and skill in interpreting the full thought of the theme.

At the base of the window is the dedicatory inscription:

William Thompson Sampson

Born February 9, 1840

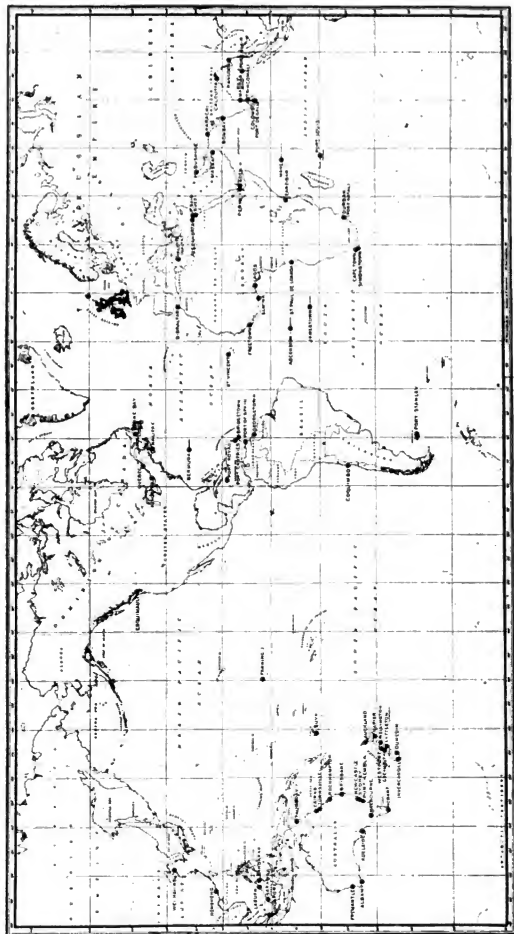
Died May 6, 1902.

Erected by the Officers of the

United States Navy.



THE SAMPSON MEMORIAL WINDOW



COALING STATIONS OF GREAT BRITAIN

The heavy black dots indicate the coaling stations

THE NAVAL BASE AT PEARL HARBOR

Congress this winter will be officially urged to grant legislative authority for the establishment at Pearl Harbor, in the Hawaiian Islands, of a defended naval base, to be complete in every particular. The project comprises the construction of a concrete dry dock that will be one of the largest in the world. It was not until last spring that Congress really awoke to the necessities of the situation and to the fact that the creation of such a base would be essential to American success in war, although the United States Government has had absolute title to Pearl Harbor since 1884, and has been in possession of the Hawaiian Islands ever since the Spanish war.

An encouraging beginning, however, was made last spring, when Congress, in the Naval Act of 1908, incorporated authority for the establishment of the Pearl Harbor naval base, and provided for dredging, dry dock, shops, stores, and yard development. Plans were not then worked out in complete detail, and the limit put on the cost of the improvements was \$3,100,000, of which \$2,000,000 was for "one graving dry dock capable of receiving the largest vessels of war of the navy," \$400,000 for dredging an entrance channel of a depth of 35 feet at the mouth of Pearl Harbor, \$300,000 for the erection of machine ships, \$300,000 for storehouses, and \$100,000 toward yard improvement. The actual appropriations made within the above limitations of cost were \$400,000 for the dredging, \$300,000 for starting the dock, \$100,000 toward building the shops, \$100,000 toward the stores, and \$100,000 for yard development, or a total of \$1,000,000 for use during the current fiscal year.

For years the Navy and War Departments have been urging the establishment and protection of this proposed mid-Pacific naval base. As soon as Congress, by its action last spring, showed a serious intention of immediately proceeding with the project, orders were issued by the Navy Department for the detailed working out of plans which had been nurtured for years as one of the chief ambitions of the service. Chief Constructor W. L. Capps was ordered to Pearl Harbor to consider the site, with the naval base board, of which Rear Admiral Seaton Schroeder was president.

The United States Government owns a tract of six hundred acres on the shore of Pearl Harbor. The Schroeder Board settled upon the location, within the limits of this property, of a naval base which will occupy fifty of the most desirable acres of the tract. After the

Schroeder report reached Washington, Civil Engineer R. C. Hollyday, Chief of the Bureau of Yards and Docks, which will have general charge of the construction of the dock and other structures at the new naval base, was ordered to Pearl Harbor, where he remained until October 11, surveying the site and considering the best location for a dry dock, which is to be one of the most important features of the establishment.

LOCATION OF THE DOCK

Upon his return to Washington, Civil Engineer Hollyday formulated his recommendations for the location of the dock, within the naval base site previously chosen by the Schroeder Board, and a complete general scheme for this dock was prepared. After being thoroughly considered in the Department, the plans were laid before Acting Secretary of the Navy Truman H. Newberry, who approved them on November 17. This action comprises approval of the location and general character of the dock. The following day, November 18, cable instructions were sent to the naval officers and engineers already at Pearl Harbor to begin boring the dock site, in order to determine the exact character of the material below the surface.

The plans of the Department now provide for the construction of a dock approximately 1125 feet long, 110 feet wide, and 35 feet over the sill. It is to be large enough to accommodate two *Delawares* at once, and divided into two parts by a transverse, intermediate caisson, so that a vessel requiring extensive repairs may be handled simultaneously with one requiring less time in dock. Such a dock is needed for the American naval forces in the Pacific. It is hoped that Congress will give the project in its present enlarged form most serious consideration during the coming winter and will grant an authorization so that the whole work may proceed in a thoroughly businesslike and economical fashion.

The construction of such a dock will cost about \$3,500,000. The total cost of the naval base improvements will be about \$6,000,000. On the army side, the fortification of the islands and the erection of garrisons will cost about \$4,000,000, so that the total outlay for the development of this base will be about \$10,000,000. This represents the cost of only one *Delaware*, and payments by the Government would be spread over a building period of three years. When the work is finished, any two of our

present type of battleships may be docked at one time, or a whole division of four vessels handled in two dockings—twice as quickly as in a single dock of smaller dimensions.

The limit of cost fixed by the Naval Act of May 13, 1908, would not build a dock as large as the one proposed. For that reason Congress will be urged during the winter to increase the limit of cost and to grant authority for every feature of the proposed new naval base, instead of having the work already authorized begun, and afterwards improving it by piece-meal legislation. The new scheme does not necessitate any increase in the amount of money to be appropriated in the immediate future, but only increases the total cost of the establishment. The appropriations annually would amount to the sums that will be needed as the work proceeds.

THE PLAN

The project will be laid before Congress in better shape than any similar one has been in recent years. In order that Congress may have definite ideas of cost, bids from contractors will be received in time to be submitted to Congress before the passage of the Naval Act. Circulars for the information of bidders, with detailed drawings of the dock, are being prepared. If Congress fails to increase the limit of cost so as to permit the construction of the proposed double dock 1125 feet long, then the Department will have to fall back upon its plans for the building of an 850-foot dock under the existing limit of cost—\$2,000,000.

Congress will probably not adopt such a short-sighted policy. From a strategic standpoint this base will be the most important in the Pacific. If an 850-foot dock were built under the present authority of law, its width (110 feet) and sill depth (35 feet) would be the same as for the proposed 1125-foot dock; and the demands of naval necessity and national defence would within a decade call for either the lengthening of the 850-foot dock or the construction of another one. A single dock, at Pearl Harbor, capable of accommodating only one battleship, would not answer the needs of the navy in either peace or war.

In our August issue, in an article on "Docks for *Dreadnoughts*," we indicated the growing need of larger docks and the steady increase in the size of battleships. In the merchant service, also, ships have been increasing in length and width at a surprising rate. The largest ship afloat to-day, the *Mauretania* of the Cunard Line, has a length of 790 feet and 88 feet beam. The two new ships

of the White Star Line, the *Olympic* and *Titanic*, will be approximately 900 feet long.

SITE OF THE BASE

Pearl Harbor is one of the finest land-locked bodies of water in the world. It is on the southern coast of the Island of Oahu, 9 miles west of Honolulu, about half way between Honolulu and Barber's Point, where the coast turns northward. It is 2370 miles from Vancouver, 2100 miles from San Francisco, 2280 miles from San Diego, 3580 miles from Salina Cruz, Mexico, 4665 miles from Panama, 4890 miles from Manila by way of Guam, 4961 miles from Hong Kong, 3445 miles from Yokohama, and 4410 miles from Sydney, Australia. Military experts regard the island as a wonderful natural fortress. It is impossible to land troops anywhere, except on the south shore, where Honolulu and Pearl Harbor are located. The whole northeast shore of Oahu is separated from the rest of the land by a perpendicular mountain wall. With a naval base at Pearl Harbor and the southern coast fortified, a land force of 1000 men could hold off a force of 100,000. Without such defences, a single hostile battleship could, as the House Naval Committee was told last spring, capture the island in a single day.

The islands are in reality mountain tops rising from an ocean depth of several miles. A feature of the topography is the stretch of coral reef along the southern coast from Diamond Head, east of Honolulu, to Barber's Point on the west. This coral reef comes to the surface of the water. There is an opening 50 feet wide in the reef near Diamond Head, where the Pacific cable was taken through; another opening in the reef at Honolulu Harbor; a third toward Pearl Harbor entrance; and a fourth at the entrance. Toward Barber's Point this reef stretches westward without another such opening and with no place where a landing could be made. The force of the breakers is tremendous, and a boat would be dashed to pieces on the sharp coral reef.

Pearl Harbor has an area of ten square miles, but the width of the entrance is less than half a mile, and the channel is narrow. Under the appropriation of \$400,000 made last spring the channel will be dredged where necessary to 32 feet and widened to 600 feet at mean low water. A 2000-foot radius will be given the various sharp turns in the channel.

PROPOSALS FOR DREDGING

The work is to extend from the site of the naval station and Kuaialui Island, down the channel and across the bar, to deep water of the open sea. It is to be com-

pleted within three years. The bids were opened by the Bureau of Yards and Docks on December 1, and the contract awarded to the Hawaiian Dredging Co. of Honolulu, for a total of \$3,560,000.

The 600-acre reservation where the base will be situated is about three miles from the ocean and has from 35 to 40 feet of water along the front. Pearl Harbor and Honolulu are well adapted to being mined. Fortifications are under way at the entrance to Pearl Harbor, where emplacements are being built for two 12-inch guns and six 12-inch mortars. Although the shores around the harbor entrance are low, ships at the naval base would not be seen from the sea, since the dock will be nearly three miles from the ocean entrance, where fortifications can easily defend the place from attack by sea.

No quicksand has been found on the site, which is composed principally of coral rock and lava soil. There is every indication that this material can be easily handled and will give a good foundation.

THE DOCK

The width of the dock that the Department wants to build at Pearl Harbor will be 110 feet,—the width to which the proposed Panama Canal locks are to be

increased, in order to allow for the increased width of recent ships. The extreme breadth of the *Delaware* type of battleship is 85 feet 2½ inches on the water line. A dock 110 feet wide will accommodate a ship of 96 feet beam and leave seven feet on each side. The *Delaware* is to be 510 feet long, the *Florida* type about 518 feet long. Two such ships may be docked at the same time in the proposed dock, without crowding. The length of the inner section of the proposed dock will take a ship 564 feet long; with a width of 110 feet, this will accommodate a battleship of 30,000 tons displacement. The second section of the dock will take a ship 536 feet long; with a width of 110 feet, it will accommodate a vessel of about 25,000 tons. It will be more businesslike and cheaper to build the two docks in the form of a large single dock, than to build them separately. With one dock over 536 feet long and the other more than 564 feet, and allowance for an intervening caisson 25 feet wide, the length of the double dock will be at least 1125 feet on the floor line. When the plans are worked out in detail, the completed dock will be about 1140 feet long from head to the outer sill. The contractors are to complete the dock in three years. Both the channel and the dock should be ready for use as a naval base in the summer of 1912.

THE NORTH DAKOTAS AND THE DREADNOUGHTS

A COMPARISON OF ARMAMENTS

The plans of the American and British services for larger and more powerful guns to be mounted on board later ships are indicated in some detail in the two following items. Whether the British will leave us behind and get their 13.5-inch gun into service before we get our 14-inch gun or other gun of equal power afloat, remains to be seen.

AMERICAN 14-INCH GUNS

A 14-inch gun has already been designed by the Bureau of Ordnance, and the next step will be its manufacture at the Washington Navy Yard. The facilities of that yard are not at present adequate to the assembling of a gun of this size, and Congress is asked, in the annual estimates, for an appropriation for raising the roof of the gun-shop over the shrinking pit. Rear Admiral Newton E. Mason, Chief of the Bureau of Ordnance, is authority for the statement that if this appropriation is made available immediately the Naval Gun Factory at

that navy yard will be able to undertake the manufacture of such a gun during the coming year.

This new design of gun will not be mounted on the *Utah* and *Florida*, though they probably will be mounted on the battleships to be authorized this winter, if the proving-ground tests of this new type of weapon warrant its introduction into the naval service.

The first official admission that this new type of weapon is to be built is found in the following sentence from the annual report of Rear Admiral Mason as Chief of the Bureau of Ordnance, under date of November 19, 1908:

"Anticipating possible need of a more powerful gun, the Bureau early in the year completed the design of a 14-inch gun designed to fire a 1400-pound projectile."

The fact that such guns were contemplated was indicated also by the annual Naval estimates transmitted to Congress by the Secretary of the Treasury on December 7. These estimates include \$25,000 for the purchase of

a new 80-ton crane to operate over the shrinking pit in the north gun-shop. This item was submitted in connection with an estimate of \$20,000 for raising the roof over the shrinking pit and for raising the supports for this new crane. In addition to being used for the manufacture of the proposed 14-inch guns, this crane will be needed for relining 12-inch 45-caliber guns.

The assembling of newer types of 12-inch guns has always been handicapped at the Naval Gun Factory by insufficient room over the shrinking pit. It is not practicable to deepen this pit, because tide-water seepage from the Eastern Branch of the Potomac River would be encountered. Therefore the increased room will have to be found over the top of the pit. Unless that portion of the roof of the north gun-shop is raised twenty-five feet higher over the shrinking pit, so as to afford ample room for assembling large guns and holding the supports of the proposed new 80-ton travelling crane over the pit, it will not be possible to reline the long 12-inch guns or to assemble the new 14-inch guns.

Watch this item. Here the Bureau and the Department seem to be forehanded. It is up to Congress. If Congress omits from the Appropriation Bill these two items, amounting to \$45,000, we will be put years behind in the matter of large guns.

ARMAMENT OF THE NORTH DAKOTAS

A resolution passed by the recent Newport Conference, with only two opposing votes, recorded the opinion of that gathering that "There is reason to believe that the main battery guns to be placed on board the *North Dakota* and *Delaware* are inferior in power to English guns now being built for ships of like date of completion, and this inferiority should be corrected in the *Florida* and *Utah*." In connection with this resolution it was brought out at the Conference that the English were building weapons of 12-inch 50-calibers, representing another increase of five feet in the length of the bore, so as to give increased velocity, the designed initial velocity being 3010 foot-seconds and the weight of the projectile 850 pounds, while the weight of the gun is said to be 65 tons 17 hundred-weight.

It is proper to point out that the 12-inch 45-caliber gun to be mounted on the *North Dakota* and *Delaware* and in all probability on the *Florida* and *Utah* is by no means the same 12-inch 45-caliber gun designated as Mark V, mounted on vessels of the *Louisiana*, *Vermont*, *Idaho*, and *New Hampshire* classes. Admiral Mason is authority for the statement that these guns are of a new mark, with new design of powder chamber, increased strength along the

chase and at the muzzle, designed for an initial velocity of 2900 foot-seconds, or 2700 foot-seconds in actual service, firing a projectile weighing 870 pounds.

In another resolution the Conference declared that "It is the sense of this Conference that no change in the number and type of the main battery guns of the *North Dakota* and *Delaware* is desirable at present." A motion to amend this proposition by substituting the word "practicable" for the word "desirable" was rejected by a vote of 37 to 20. When the fact was brought out that contracts had already been let for the big guns for the *Florida* and *Utah*, the Conference by a unanimous vote adopted the following resolution: "The Conference approves the adoption of the 12-inch 45-caliber guns already under construction for the *Utah* and *Florida* and recommends a service velocity for them of 2950 foot-seconds, if practicable."

In his annual report Rear Admiral Mason makes the following statement:

"It has been stated in the press and elsewhere that our latest type 12-inch guns are inferior in power to those in use in certain foreign navies. As a matter of fact, the 12-inch guns mounted on the eight latest of our battleships already in commission are equal or superior in power to any 12-inch gun yet afloat anywhere in the world, and the 12-inch guns of our battleships in course of construction will be equal or superior in power to any 12-inch foreign guns of which we have authentic information."

There has, doubtless, been a great deal of irresponsible criticism of American naval ordnance, but where wrong these statements have been based upon misinformation or due to statements from abroad respecting the development of 12-inch 50-caliber guns for the English Navy and rumors respecting the manufacture in England of 13.5-inch guns by the Beardmore ordnance firm. Admiral Mason might justly characterize much that has been irresponsibly said concerning our ordnance as being without foundation in fact, but the statement which he makes in his annual report cannot be said to fairly represent the situation. It does not agree, in the first place, with the conclusions of the Newport Conference.

It is true that that Conference resolved that "There is reason to believe that the latest 12-inch guns afloat in the United States Navy are equal to the latest 12-inch guns afloat in the English Navy." This resolution, which was adopted by a vote of 52 to 7, confines its statement to a comparison of British and American 12-inch guns and refers merely to guns "afloat." Admiral Mason goes farther and says that, as a matter of "fact," the 12-inch guns mounted on the eight latest of our battleships already "in commission," that is *afloat*, "are" equal or superior

in power to "any" 12-inch gun yet afloat "anywhere in the world." The Newport Conference's resolution with reference to 12-inch guns afloat does not say that they are, but merely that "there is reason to believe" that they are equal—to what?—not "to any 12-inch gun yet afloat anywhere in the world," but merely to "the latest 12-inch guns afloat in the English Navy."

So much for these guns "afloat," which, in the case of both the American and British navies, are 12-inch 45-caliber guns. Now, as to guns for battleships in course of construction.

Rear Admiral Mason says that "the 12-inch guns of our battleships in course of construction will be equal or superior in power to any 12-inch foreign gun of which we have authentic information." This does not at all agree with Resolution No. 5 of the Newport Conference, which was passed with only two opposing votes, and which expressed the belief of the Conference that the "main battery guns to be placed on board the *North Dakota* and *Delaware* are inferior in power to English guns now being built for ships of like date of completion."

The guns which members of the Newport Conference had in mind when this resolution was adopted were the 12-inch 50-caliber guns of the three battleships of the *St. Vincent* class—the *St. Vincent*, *Collingwood*, and *Vanguard*—now under construction in England. These three British vessels were authorized in 1907, as were the *North Dakota* and *Delaware*. The *St. Vincent* was launched before the *North Dakota*, will be commissioned before the *North Dakota*, and, in all fair use of the word, is "contemporary" with the *North Dakota*; yet the *St. Vincent* and her class are to carry 50-caliber guns and the *North Dakotas* 45-caliber guns.

BRITISH 13.5-INCH GUNS

The British ordnance experts, commercial as well as official, have been devoting close attention to an even more powerful weapon—the 13.5-inch gun. The decision to undertake the manufacture of 14-inch weapons—now reached by those in charge of American naval ordnance development—is, in reality, a response to the report that ships to be authorized at this session of the British Parliament, possibly also the ship authorized last spring and to be laid down in January under the designation of the *Neptune*, are likely to carry 13.5-inch guns. If Rear Admiral Mason had asserted that our proposed 14-inch guns would be equal or superior to the proposed 13.5-inch guns of the British, he would have given a much franker analysis of the situation than does his reference to the 12-inch guns of ships under construction at the present time.

THE NAVY in its September issue presented a fair state-

ment regarding the development of the 50-caliber gun of the 12-inch type both in England and Germany. It may be interesting to consider in this connection the comment which appears in the United Service Gazette (London) for November 26, 1908, reading as follows:—

"As we recently predicted would be the case, the size of primary armaments of our capital ships continues to grow. All the *Dreadnoughts* with their armament at present on board are armed with 12-inch guns of 46½ calibers and below, but the battleship *Collingwood*, launched by Mrs. Asquith at Devonport about ten days ago, will carry 12-inch guns measuring 50 calibers in length. The projectile of these improved weapons will remain the same as for the shorter type of guns of this size, viz., 850 pounds; but the increased length will give a higher muzzle velocity, more penetrating power, and a longer range, three factors which tell for so much in modern sea battles, as demonstrated in the Far East during the naval campaign between Russia and Japan. But the limit has not yet been reached, for the new *Dreadnought*, whose keel will shortly be laid as part of this year's program, will almost certainly carry 13.5-inch guns in her turrets. The increase of 1½ inches in the size of the bore of weapons of the larger type enables a comparatively enormous amount of metal being added to the weight of the projectile, as the 850 pounds for the 12-inch gun is increased to 1,250 pounds in the case of the 13.5-inch weapon—a gain of nearly one-third in weight for the increase of 1½ inches only in the diameter of the shot. The difference in the blows delivered at 1,000 yards between two such projectiles may be imagined. The modern 13.5-inch gun will deliver a staggering blow at any distance up to fifteen or sixteen miles probably.

"The new heavy guns which have been built for the *Collingwood* group will be most potential engines of aggression, far exceeding any artillery ever yet put upon the sea. They will weigh, without mountings, 65 tons apiece, or only 1.72 tons short of the old 13.5-inch guns carried by the *Royal Sovereigns*. Indeed, it is probably this approximate similarity of weight which has given rise to the rumors that these weapons would mark a return to this type. The guns are of 50 calibers, their total length being a shade over 56 feet. They throw a projectile of 850 pounds—in this respect they do not differ from the earlier types of the 12-inch gun—with a muzzle velocity of 3,010 foot-seconds, and a muzzle energy of 54,200 foot-tons, which latter is practically equal to that of the ponderous 111-ton gun, with its enormous missile of 1,800 weight. The proving ground tests of this new gun have resulted in some remarkable demonstrations of power. As a result of these trials, it is safe to say that a capped shell, on direct impact, would penetrate 12 inches of Krupp steel at 4000 yards. This is one inch thicker than the broadside of the *Dreadnoughts*. The inevitable response to this remarkable progress in gun-power—a progress in which, of course, other nations will keep pace—will be an enhancement of armor protection. And so the time-honored problem of the immovable post and the irresistible shot continues to defy the naval designers in their struggle to attain finality."

SERVICE ITEMS

PAY OF THE NAVY

The total estimate submitted to Congress for the pay of the Navy for 1910 amounts to \$32,375,797, representing an increase of \$1,401,482 over the appropriations made for 1909. The largest item is \$17,725,680, for the pay and allowances of 42,000 petty officers, seamen, and other enlisted men. The next is \$9,222,443 for the pay of the 3250 officers on the active list now allowed by law. The sum of \$58,000 is requested for the pay of the Nurse Corps established by law last year, and \$13,000 for rent of quarters for them. Some of these nurses may live in the naval hospitals when on duty, but when off duty they are to have quarters outside.

Before the Naval Committee of the House of Representatives, on December 7, Rear Admiral John E. Pillsbury, Chief of the Bureau of Navigation, explained the reasons for this year's increase in the pay estimates. He pointed out that the Act of May 13, 1908, authorized 10 per cent additional pay for all the enlisted force. Congress last year authorized the enlistment of 3000 additional men to be immediately available and 3000 more to be available at the beginning of the present fiscal year; and, besides increasing the pay of the enlisted men 10 per cent, increased the pay of officers, making it the same as army pay.

The appropriation for navy pay for the current fiscal year is \$30,974,225. The increase in the amount necessary for the pay of officers for the fiscal year 1909 (\$8,510,241) over that required for the pay of officers for the fiscal year 1910 (\$9,222,443) is due to the addition of 121 line officers in 1910 over the number for 1909, to higher pay by reason of higher rank and increased longevity in the Staff Corps, and by an addition of \$240,963 for increased longevity for warrant officers. In preparing the estimates for 1909 the enlisted service of warrant officers, through a misapprehension, was not taken into consideration, as it should have been, in computing higher pay due them for increased longevity, and for this reason the sum of \$240,963 was included in the estimates for 1910. The following table has been submitted to the House Naval Committee, to indicate the necessity for increasing the total for pay of officers in 1910 over that of 1909:

Pay of 3164 officers (estimated for in 1909), figured on basis of new rate of pay, including 10 per cent for sea service	\$8,510,241
Pay of 121 line officers (estimated for in 1910) over number allowed in 1909.....	\$257,100
Increase by reason of higher rank and increased longevity in Staff Corps.....	245,934
Increased longevity for warrant officers (error in estimate of 1909).....	240,963
	743,997
	\$9,254,238
Deduction by reason of 35 officers (mates) less being estimated for in 1910 than in 1909.....	37,875
Total required for pay of 3250 officers.....	\$9,216,363

THE BUREAU SYSTEM

The failure of Congress to alter the law to which the eight bureaus of the Navy Department owe their present separate and independent existence has left the "bureau system" substantially where it was when the "new navy" was started a quarter of a century ago. While the subject of naval reorganization is complex and there are diverse views regarding the best way of coordinating the work of the bureaus, the demand for reorganization has been so long advocated by many responsible men, that it is remarkable Congress has failed to remedy the situation.

Secretary Newberry has taken the matter up with President Roosevelt, and the decision has now been reached to make changes through the exercise of executive functions first and then by legislation. The reorganization that is needed cannot be accomplished systematically and permanently without legislative enactment.

The membership of the General Board of the Navy is to be increased; and the Board on Construction, which had general supervision over the design, construction, and equipment of new ships, has been dissolved and reconstituted on a different basis, while these two boards will hereafter work in closer cooperation; and the way has been paved for merging the Bureau of Steam Engineering with the Bureau of Construction and Repair.

THE BOARD ON CONSTRUCTION

On December 21, Secretary Newberry announced that the Department had dissolved the Board on Construction and detailed the following officers to constitute a new Board on Construction:—

Rear Admiral George A. Converse, U. S. N., retired, formerly Chief of the Bureau of Navigation.

Rear Admiral Newton E. Mason, U. S. N., Chief of the Bureau of Ordnance.

Rear Admiral William S. Cowles, U. S. N., retired, Chief of the Bureau of Equipment.

Chief Constructor Washington Lee Capps, U. S. N., Chief of the Bureau of Construction and Repair.

Rear Admiral Thomas C. McLean, U. S. N., President of the Board of Inspection and Survey.

Captain William W. Kimball, U. S. N., an authority on torpedoes and submarines, who is a member of the Naval Examining and Retiring Boards.

Captain Sidney A. Staunton, U. S. N., member of the Army and Navy Joint Board; also a member of the General Board of the Navy.

Captain Isaac S. K. Reeves, U. S. N., a member of the Board of Inspection and Survey.

The duties of the Board are to be comprised within Chapter 29, section 4, paragraph 1772, of the Navy Regulations, and by inserting after the word "Navy" in said paragraph, the words, "and such other work as the Secretary of the Navy may assign," making the paragraph read as follows:—

"1772.—A board having general supervision over the designing, constructing, and equipping of new ships for the Navy, and such other work as the Secretary of the Navy may assign, known as the Board on Construction, shall be composed of the Chiefs of the Bureaus of Equipment, Ordnance, Construction and Repair, and Steam Engineering, and such other officers as the Secretary may designate."

As the regulations stood prior to this amendment, the work of the Board on Construction was limited to supervision over the designing, constructing and equipping of new ships. From now on the Board will be subject to such other duties as the Secretary may assign to it. This increases materially the scope and importance of the Board on Construction.

The claim frequently made against the former Board on Construction that it performed the rather anomalous function of passing judgment upon its own recommendation in ship design, was a very serious objection to the Board as formerly constituted.

The dissolved Board consisted of the chiefs of the four bureaus having control over the material of the Navy, with a fifth officer of higher rank presiding over the work of the Board. Four of the five members of the former Board on Construction—Rear Admirals Con-

verse, Mason, and Cowles, and Chief Constructor Capps—have been assigned to duty on the new Board on Construction. The fifth member of the old Board was former Engineer-in-Chief John K. Barton of the Bureau of Steam Engineering. This bureau has no member on the new Board on Construction, as the vacancy created by the retirement of Engineer-in-Chief Barton has not been filled and it is not the intention of the Department to fill that vacancy for the present.

PERSONNEL OF THE NEW BOARD ON CONSTRUCTION.

The new Board has eight instead of five members, and, with the elimination of Steam Engineering from representation on the Board through a chief of bureau, the Board is now composed of four of the former members and four new members. One of these new members, Captain Sidney A. Staunton, is a member of the General Board of the Navy, it being the intention to have the General Board continuously represented on the Board on Construction by at least one member, so as to bring the work of the General Board into closer touch with that of the Board on Construction. Two other of the new members—Rear Admiral Thomas C. McLean and Captain I. S. K. Reeves—now belong to the Board on Inspection and Survey,—a board that, under specific orders in each case from the Department, is charged with the acceptance examinations and trials of all naval vessels built by private firms, and the inspection of all naval vessels newly commissioned. It inspects and examines all naval vessels upon their return from foreign stations and vessels in the United States as often as once in three years when practicable, and reports in writing to the Secretary of the Navy whether the vessels inspected are fit for further service, particularizing as to the defects that may be found. The various bureaus concerned in the construction of warships are required to furnish the Board of Inspection and Survey with all corrected plans and specifications necessary for its guidance in carrying out trials. It is thought that the assignment of two members of this board to duty with the Board on Construction will be especially valuable, as it will bring into intimate association with the men who pass upon ship designs the officers who officially test and try out the various new types of vessels in the Navy. Captain Kimball, the other new member, is an expert on torpedoes and submarines. Secretary Newberry explained that he was selected because he is a "gool, all-round naval man," and not associated with any particular bureau.

CONSOLIDATION OF THE BUREAUS

By leaving the Bureau of Steam Engineering without a chief, it is believed that the merging of Steam Engineering with Construction and Repair can be more easily accomplished, in case Congress authorizes such action. It is believed that when Rear Admiral Cowles retires from his present position of Chief of Equipment, the latter bureau also will be merged with Construction and Repair. Both of these Bureaus — Steam Engineering and Equipment — were offshoots from Construction and Repair, when the number of bureaus was increased from five to eight some years ago. All three of these Bureaus have to do with the building and equipment of new vessels for the navy, and various Secretaries have suggested their consolidation.

GENERAL BOARD CHANGES

Since 1905 the membership of the General Board of the Navy has, by a provision in the Navy Regulations, been limited to seven members, besides a secretary; such other officers as were required have been detailed from time to time for duty with the Board. The latter participate in the Board's work and discussions, but do not vote with the members of that body. The President and the Department are now of the opinion that the membership of the General Board ought to be enlarged, so as to enable it to work in closer conjunction with the general administration of the navy. The provision in the Regulations limiting its membership to seven has been eliminated, and it will be increased as required from time to time by the exigencies of the service. The first new assignment to the Board—Commander Abraham E. Culver—was announced by Secretary Newberry on December 21, taking effect from that date. Commander Culver now fills the position of naval aide to the Assistant Secretary of the Navy. The naval aide of the Assistant Secretary is the latter's special military adviser in the Department and is assigned specific duties by the Assistant Secretary, in connection with the development of the naval militia, the propriety and extent of repairs to ships, the issuance of advertisements on behalf of the Department, and the Assistant Secretary's inspection of naval vessels in commission. The other assignments to the General Board will be announced in the near future. It is understood to be part of the plan to assign some staff officers to that Board.

The General Board of the Navy was established by Navy Department General Order No. 544 of March 13, 1900, and its president from the beginning has been

Admiral George Dewey. Originally it had more than seven members; but since 1905, when the Board was given greater permanence by the prominence assigned its work and position in the Navy Regulations, its membership has been limited to that number. Three of the seven are ex-officio members holding places on the Board by reason of their supervision over the Naval War College, the Office of Naval Intelligence, and the Bureau of Navigation, while the other three members are chosen from the fleet.

The General Board was in reality a "War Board," growing out of the lessons of the Spanish-American War; the original object of the administration in establishing it being to have it prepare plans for war. So complete has been its preparation of plans that there is scarcely any problem of probable campaigns that has not now been worked out and filed for use whenever the Department may find it necessary to call upon the Board for advice as to a plan of campaign. Having performed this part of its work so well, it is now understood to be the desire to have the General Board enlarged so that it may participate more actively in the work of giving military direction to the naval establishment, so that the latter may be ready at any instant to carry out the plans already evolved for war or peace operations. Besides preparing plans for war and of cooperation with the Army, the General Board outlines the military policies of the Department on the shipbuilding program, the development of naval and coaling stations, and battle tactics for the fleet. Before the establishment of the General Board, the Department had to call upon individual officers or on special advisory boards appointed from time to time, for recommendations as to numbers and types of ships and as to the advisability of establishing coaling or naval stations in any particular locality, and on other important subjects,—a practice that frequently resulted in conflicting conclusions, which embarrassed the Department in making a decision. The greatest value of the General Board lies in its permanency and in its complete record of its recommendations and action on important subjects which are referred to it by the Secretary of the Navy or which originate in the Board. In order that the policy advocated on important subjects might be continuous, its membership has been changed one or two at a time, and at regular intervals.

DUTIES OF THE GENERAL BOARD

Just at the present time the most important of the duties of the General Board concerns the designs for the new battleships to be authorized by the present session of

Congress and to be laid down the latter part of 1909. Various plans for vessels of larger displacement than either the *Utah* or *Florida*, including ships ranging as high as 25,000 tons displacement and mounting either eight 14-inch guns or twelve 12-inch guns, have been tentatively considered. The General Board fixes the general military characteristics of the vessels. Its recommendations for certain general types of ships are submitted to the Department and are turned over to the Board on Construction, which sees that the general ideas of the Board are worked out in detail. Congress then determines the number of

vessels to be built, and fixes in a general way their type and characteristics. The plans as worked out in detail in the bureau and as approved by the Board on Construction are then sent back to the General Board for consideration. They are returned through the Department a second time from the General Board to the Board on Construction and are next sent to the Secretary of the Navy for the approval of the Department and the President. These are the duties of the General Board as arranged by the Department under its plans for reorganization.

FOREIGN NAVIES

GREAT BRITAIN

CONTRACTS AWARDED FOR SIXTEEN DESTROYERS

The Admiralty, late in November, announced the award of contracts for the construction of the sixteen new destroyers authorized by the 1908 British Naval Act. These destroyers, which are to have an average length of 270 feet, 28 feet beam, about 900 tons displacement and 27 knots speed, were described in THE NAVY of September last. They will burn coal instead of oil, and are understood to be intended for coast defense duty rather than scouting, though they are expected to give a good account of themselves in a strong seaway. While they will not equal the speed of the 33-knot "Tribal" class in smooth water, these new destroyers are expected to be just as fast as that class in unfavorable weather. Under the awards just made these boats will be constructed by private contractors as follows:—

- Three by Messrs. John Brown and Company, of Clydebank.
- Three by Messrs. Cammell, Laird and Company, of Birkenhead.
- Three by the Fairfield Shipbuilding and Engineering Company, of Govan.
- Two by Messrs. J. Samuel White and Company, of East Cowes, Isle of Wight.
- One by Messrs. William Denny and Brothers, of Dumbarton.
- One by Messrs. R. and W. Hawthorn, Leslie and Company, of Newcastle-on-Tyne.
- One by the London and Glasgow Company, of Glasgow.
- One by the Thames Iron Works and Shipbuilding Company, Limited.
- One by Messrs. J. I. Thornycroft and Company, of Southampton.

THE TWO-POWER STANDARD

Despite the rigid adherence of the British government to the maintenance of the two-power standard in the increase of her navy and the assurances of Cabinet and Parliamentary leaders that there will be no departure from traditional policy in this regard, keen interest is taken in the subject. The concern is not so much about the immediate present as the near future. It is quite generally conceded that the two-power standard is now intact; but the activity of the German admiralty and the launching of three German battleships within the present year, together with the fact that the German Reichstag last winter reduced the age of its capital fighting ships and amended its permanent shipbuilding statute so as to still further strengthen its already formidable naval building scheme has aroused interest in England respecting the policy of their Parliament and the Ministry with regard to the naval increase of Great Britain.

Last spring only one *Dreadnought* battleship and one *Invincible* cruiser were authorized as England's response to the German program of three *Nassaus*. Exclusive of the two *Lord Nelsons*, which are less powerful in armament and of smaller displacement, Great Britain now has 8 *Dreadnoughts* and 4 *Invincibles* built, building, or authorized. The latest of these is scheduled to be completed at the end of 1910 or the beginning of 1911. Germany has 7 vessels of the *Nassau* type built, building, or authorized, besides 3 armored cruisers intended as replies to the British *Invincibles*. The latest of these German vessels—those authorized last winter—are scheduled for completion at the end of 1911. Four of these ten German vessels were launched during the past summer. The German naval shipbuilding program for

1909 is definitely known. Under the continuous construction policy adopted by the Reichstag there will be authorized during the coming winter three more battleships and a large armored cruiser, besides a flotilla of destroyers and certain submarines. What will the British Admiralty do to indicate its intention of maintaining the two-power standard, which many regard as threatened? Nothing less than the authorization of four more *Dreadnoughts* will satisfy many. It is even contended that a proper building program for 1909 would include six capital ships. The First Lord of the Admiralty has been questioned in Parliament, but neither he nor any other responsible member of the government is yet willing to indicate the number of *Dreadnoughts* to be recommended in the budget which will be submitted within the next few months.

In the "National Review" a warning note is sounded by H. W. Wilson, in which he says:—

"The most critical moment of the British Navy is drawing near. In the next few weeks and months it will be determined whether the British Navy—the only force which stands between the Empire and its destruction—is to be sacrificed once more to the foolish and short-sighted demands of the pacifists. The command of the sea is trembling in the balance."

Commenting on the situation, the Army and Navy Gazette, a British service periodical, says:—

"If we do not lay down, build, and complete by the end of 1911 at least six ships of the *Dreadnought* and *Invincible* classes, improvements on the prototypes of these classes, then our margin of superiority will be in a fair way of disappearing. And if we do not lay down, build, and complete another batch by the end of 1912, the margin of safety will have disappeared."

In the House of Commons, on November 12, the Prime Minister, Mr. Asquith, responding to a direct question from Mr. Arthur Lee, stated that the government accepted the two-power standard of naval strength as meaning a preponderance of 10 per cent over the combined strengths in capital ships of the next two strongest powers. At Leeds, quite recently, the Prime Minister said:—

"Every Power in the world knows that our measure of what we require in naval strength is the measure of security, and nothing more."

The statement of the Prime Minister is unequivocal that Great Britain must have a fleet of capital ships—that is, battleships and armored cruisers for the fighting

line—equal to that of the two greatest foreign powers, with a margin of 10 per cent. In the matter of *Dreadnoughts* the choice of these two powers must be made from Germany, France, and the United States. The principle of the two-power standard now accepted as an established article of faith by the whole British nation is the one laid down by Lord Cawdor at Birmingham, in 1906, when he said:—

"The test the admiralty applied to naval efficiency, and the standard they have set up for years past as that which must be maintained, was that we must be strong enough, in battleships alone, to defeat any combination of any two Powers, and that we should have a margin over and above this for contingencies of some 10 per cent. This was the minimum which they considered safe. With respect to our cruiser power, we needed and must maintain far more."

But the actual foundation for the two-power standard was laid as early as 1885, by Mr. Gladstone, as will be seen from the following extract from a speech made by Sir Edward Grey, before the Royal United Service Institution on March 1, 1904:—

"In 1885 the standard set and maintained by Mr. Gladstone's government was to lay down two ships for every one laid down by the French government. . . . That standard must not be taken to apply to any two Powers in particular, but to the two Powers which at the time of speaking had the largest navies."

In his speech at Scarborough on Thursday, November 19, 1908, Sir Edward Grey said:—

"We must have and we must maintain a naval power equal to meet and to overcome any probable combination which may be brought to bear on us because without that we cannot protect what we have. There is no half-way house as far as we are concerned in naval affairs. There is no half-way house between complete safety and absolute ruin, but we want a strong navy, not for the purposes of offense, but for defense. What we have got to do, is to satisfy the country as regards naval power that we are strong enough to ensure that absolute safety and supremacy at sea which is absolutely necessary to protect our position, but we shall labor also to convince others that our strength at sea is maintained by us as a protection of ourselves, and not as a menace to any other country."

Thus there are repeated protestations showing the full realization of the need for a strong navy. But there are occasional discordant notes which cause the fear that the uncertain conditions of imperial finances may have their effect upon the naval budget.

PROGRESS OF THE 1908 NAVAL PROGRAM

In connection with the discussion of the naval program for the coming financial year, there has been considerable criticism in England of the fact that neither of the two capital ships authorized in the 1908 program last spring has yet been laid down, although the building slips in the government yards at Portsmouth and Devonport are ready to receive their keels. One of these, now known as the *Neptune*, is to be laid down at Portsmouth dockyard in the slip recently vacated by the launching of the *St. Vincent*; while the other is a cruiser of the *Invincible* type. The First Lord of the Admiralty, Mr. McKenna, recently stated in Parliament that the *Neptune* will be laid down in January and that the armored cruiser will have her keel laid at Devonport dockyard in February.

Six protected cruisers of the improved *Boudicca* type were authorized by the shipbuilding program of 1908, and, after considerable delay, the orders for their construction were placed by the admiralty. One of these six fast cruisers is under construction at the government dockyard at Pembroke, where she was laid down last June, under the provisional name of *Caractacus*, but it was not until the third week in November that the admiralty announced that contracts for the construction of the other five had been placed, as follows:—

- One to the Fairfield Shipbuilding and Engineering Company, Ltd., of Govan.
- One to Messrs. Vickers Sons and Maxim, Ltd., of Barrow-in-Furness.
- One to Messrs. John Brown and Company, Ltd., of Clydebank.
- One to Messrs. William Beardmore and Company, Ltd., of Dalmuir.
- One to Sir W. G. Armstrong, Whitworth and Company, Ltd., of Newcastle-on-Tyne.

These vessels are intended for scouts and are alike in armament and radius of action, and will be superior to the 3000-ton scouts launched four years ago. Their displacement will be about 3500 tons and speed 26 knots. While the displacement of the *Boudicca*, which was launched on May 14, 1908, is given as 3353 tons, the *Caractacus* (also referred to as the *Bellona*) is understood to have a displacement of 3404 tons, a trifle more beam, and a little more horse-power than the *Boudicca*, which measures 385 feet between perpendiculars, has an extreme breadth of 41 feet and mean load draft of 13.5 feet. The length and draft of the *Caractacus* series will be the same as that of the *Boudicca*, but with a foot greater beam. Apart from their armament, these new

vessels will cost about \$1,440,000 each. The lowest accepted tender for any one of the five to be built by private contract was about \$1,421,018, and the highest slightly over \$1,470,000.

GERMANY

NEW FLOATING DOCK FOR HAMBURG

Announcement is made that early in 1909 the Vulcan Shipbuilding Company of Stettin will commence the erection of their large new floating dock for use at their shipyard at Hamburg. This dock will be of the bolted sectional type, with a length over all of 723 feet, a width of 106 feet between side walls at the level of the bottom pontoon deck, and a width of 115 feet at the deep draft line. The dock will have a lifting power of not less than 35,000 tons and will be capable of accommodating any vessel afloat. The pumping plant will be situated entirely on one wall and will be capable of lifting a vessel of the maximum size in five hours. The largest of the three floating docks in the United States naval service is the *Detwey*, now stationed at Olongapo, in the Philippines, which has a lifting capacity of 16,000 tons, is 500 feet 2 inches over all, has a clear width of 100 feet inside at the top of the trunks, and cost \$1,170,792.68.

TURBINE TESTS

The naval service of Germany, like that of the United States, is proceeding cautiously before finally adopting any special type of turbine for its naval vessels. The net result of future experiments may be the adoption of no particular type, but the elimination of those not regarded as adapted to conditions of service, and the retention of several types considered the best. Two types of turbine—the Parsons and the Curtis—are now being tested in the American Navy, and a third, the Zoelly type, is about to be introduced in certain units of the 1908 group of destroyers just ordered. Germany also is trying various types and in several years will have comparative tests of four makes of turbine, it having been determined to equip the four new protected cruisers with four different kinds of turbines. These cruisers are alike in other essential characteristics and this will afford a fair trial of the different types. They will be installed as follows:—

Curtis turbines in the protected cruiser *Ersatz Jagd*, Parsons turbines in the protected cruiser *Ersatz Pfeil*, Schichan turbines in the protected cruiser *Ersatz Sperber*, Zoelly turbines in the protected cruiser *Ersatz Schwalbe*.

FRANCE

REPORT ON THE FRENCH NAVAL BUDGET

The necessity for organically reforming French naval administration, in order to lift the French Navy from the decline of the past five years, is strongly urged in the report which M. Chaumet, the French Deputy for Bordeaux, has just presented to the Chamber of Deputies respecting the French Naval Budget for 1909. He says that there can be no reform without a clean sweep of obsolete administrative institutions, the elimination of more old vessels, the reorganization of the personnel, and the establishment of the French naval arsenals upon a new and more logical basis, with a restoration of discipline. The new French Minister of Marine, M. Alfred Picard, inaugurated the introduction of naval reforms as soon as he was appointed, and is establishing measures of economy and better organization in the arsenals and clerical staffs. In this he is supported by M. Chaumet, who recommends economy in both men and material by discarding obsolete ships, abandoning certain naval depots in foreign stations, doing away with the naval port at Rochefort, and reorganizing the work of the arsenals so that their output will be more consistent with the cost of their maintenance and operation. France, less than ten years ago, was second to Great Britain in her rank among the great naval Powers. To-day she stands in third place, or just below the United States, and is closely pressed by Germany. M. Chaumet points out that France has gradually lost her rank through two mistakes of policy: first, she thought she needed a purely defensive navy; secondly, she thought she could maintain such a navy on a cheap basis.

In the effort of France to maintain a navy for mere defence of her coasts, she built what M. Chaumet declares are a number of useless units. He points out that while they cost less than battleships, they do not last half as long and are costlier in the long run, besides being wrong in idea. He shows how the cost of the crews serving in these supposedly cheap flotillas is \$3,051,319 annually, as compared with \$2,391,227 spent annually on the crews of French battleships. M. Chaumet says that the number of units fit for fighting duty are 15 battleships, 5 coast defence vessels, 21 armored cruisers, 64 destroyers, 162 torpedo boats, 30 submersibles, and 38 submarines. He says that the rest are unfit for duty, and calls attention to the striking contrast between these figures and those of the ships supposedly fit for active service.

In a comparison of the French Navy with foreign navies, M. Chaumet says that while the tonnage of the

French Navy in battleships and armored cruisers will still be greater than that of Germany in 1910, that France, in order to maintain its equality with Germany, must have a total tonnage of 753,000 tons; that is, that France must add 350,400 tons to this year's tonnage. He points out that the aggregate tonnage of the ships to be stricken from the French navy list before 1918 would be 105,500, and, therefore, that new war vessels aggregating a tonnage of 455,000 would have to be constructed in the next ten years by the French government at a cost of nearly \$200,000,000. M. Chaumet asks if France is justified in making such an outlay, and if the French people can bear such an expenditure, and says the solution of the problem and the deciding of these questions must rest with the government.

In pointing out that French units are not really as effective as they should be, he says the ships supposed to be ready for fighting are not provided with spare stores; that the new battleships and cruisers will be virtually out of date when commissioned; that French destroyers are inferior to those of other navies and half of them always under repair; that many of the submarines possess insufficient range of action; that vessels which should be completed next year will not actually be ready until 1912; that the squadrons of the French fleet lack essential auxiliaries, scouts, mining vessels, strong tugs, and floating workshops; that the ships of the 1900 program have not yet received their semi-explosive shells and have reserves neither of guns nor ammunition; and that France has spent enough money and made enough sacrifices to have an efficient fleet. In connection with the policy of keeping up coast-defence armament instead of developing a strong offensive fleet, he says France cannot afford to build destroyers and submersibles to achieve illusory economies when they ought to be authorized and built merely for military reasons. The Chaumet report is a severe indictment against the French naval system.

JAPAN

REARMAMENT OF OLDER VESSELS

An interesting intimation from Tokyo has been the statement that instead of building new ships the Japanese Admiralty would, for the present, confine its attention to the rearmament of older battleships, in order to bring them into line with modern ideas, and to the completion of vessels already laid down. This assertion has come direct from Japan as well as through European sources. For several years it has been claimed that the

Mikasa, which suffered severely in an explosion, would be rebuilt with a complete change in the arrangement of her armament. She is a Vickers-built ship of 15,200 tons displacement, and originally carried in her main battery four 12-inch and fourteen 6-inch guns. The statement was made that the *Mikasa* would carry four 12-inch, four 10-inch, and ten 6-inch guns by substituting four 10-inch for four of her 6-inch guns. After she was refitted it is said that there was actually no change in her armament except the substitution of guns of 45 calibers length for 40-caliber. What purported to be a photograph of the *Mikasa* about a year ago showed her upper-deck 6-inch casemates the same as before her accident—turrets to carry 10-inch guns being conspicuous by their absence. Now the information comes from Japan that the Japanese intend to change the armament of vessels of the *Mikasa* type to four 12-inch and four 10-inch guns, the latter taking the place of the 6-inch. There are three of these, the *Mikasa*, the *Asahi* (15,200 tons, also built in England), and the Thames-built battleship *Shikishima* (14,850 tons), all of which carried four 12-inch guns and fourteen 6-inch. It is said that at least four other older vessels, all captured from Russia during the war, will have the new arrangement of four 12-inch guns and four 10-inch, like the *Mikasa*, so as to create a homogeneous fighting force more nearly like the recently built Japanese battleships *Katori* and *Kashima*, which each carry a main armament of four 12-inch guns and four 10-inch, besides twelve 6-inch guns for torpedo defence. These four vessels are the *Hizen*, formerly the *Retvizan*, 12,700 tons, built by the Cramps of Philadelphia, which now has four 12-inch and twelve 6-inch guns; the *Izumi*, formerly the *Orel*, built at the Galernii Island works in Russia, 13,516 tons, which has the same armament as the *Hizen*; and the sister ships *Saganii* and *Suseo*, formerly known as the *Peresviet* and *Pobieda*, respectively, and both built at the new Admiralty works of St. Petersburg, with an armament of four 10-inch and eleven 6-inch guns on a displacement of 12,674 tons. Just what torpedo guns these vessels will carry under the suggested rearmament is not learned, but they will certainly not mount twelve 6-inch guns for that purpose, as do the *Kashima* and *Katori*. The two latter vessels have a displacement of approximately 16,000 tons each, and vessels of the 15,000-ton *Mikasa* type or the lighter *Retvizan* and *Peresviet* classes would have difficulty in taking so much additional weight. It is a well-known fact in naval construction that reconstruction involving considerable additional weights has seldom been successful.

ITALY

SHIPS OF REINFORCED CONCRETE

Large boats of reinforced concrete have been built in Italy, and five vessels, of 120 or more tons, have been constructed on commission for the Italian Navy. The first of these, a 120-ton barge, was built in 1906, on the plans of Signor Gabellini, an Italian engineer, who has for many years advocated the use of ferro-concrete for the construction of vessels and other kinds of floating structures. This vessel, which was built with a double bottom and of the cellular type, was recently submitted to severe tests at the naval arsenal at Spezia, Italy, where a much larger boat of iron, equipped with a ram, was directed against it, without producing any considerable damage. In consequence of the satisfactory results obtained in the experiments with this boat, four more of these barges were ordered on account of the Italian Navy. On account of the unfavorable condition of Italy as an iron-producing country the problem of reinforced concrete ships has been meeting with a good deal of attention there, and experiments and trials on a much larger scale will now be conducted in this kind of construction. The Gabellini system has been applied successfully in quite a number of cases and has now been formally adopted by the Italian Government for certain purposes connected with its navy. Under this system the metallic framework or skeleton of reinforcing iron is arranged in accordance with the actual distribution of stresses; this framework is covered with expanded metal, which supplements the protective action by the distribution of armoring over a large area, while uniting the various portions of the mass in such a manner as to preclude any risk of fracture. This process dispenses with the necessity for costly moulds and renders it permissible to employ extremely thin walls to serve as the outer skin.

CONCRETE ARMOR EXPERIMENTS

Some novel experiments have been conducted during the past year in Italy with armor plate concrete, in an effort to discover a new method of protecting warships. The invention which has attracted the most attention is that of Signor Lorenzo d'Adda, consisting of the application of a special form of reinforced concrete armor to the sides of naval vessels, to take the place of steel, in order to reduce the cost of armor belting. This is an important problem for the Italians, who lack large appropriations for naval purposes and also because of the scarcity of steel in their country. Signor d'Adda's claim

is that he can successfully use concrete 4 feet 6 inches thick at the water line, narrowing it to 3 feet at the top, and still have the ship float with the same displacement that she would with Krupp cemented armor 9 inches thick on the water line. This concrete is manufactured of crushed rock, porphyry, basalt, red granite, and river sand, and would cost about \$12 a ton. It is reinforced with steel frame and lattice work on the interior of the vessel. Another somewhat similar kind of cement armor has been invented by Naval Constructor Fausto Baratta and has undergone firing tests with 8-inch guns on the Muggiano proving grounds. The idea of using cement is not altogether new, although it has not been adopted as a substitute for steel armoring. The French Navy has been making experiments with an invention of cement of special composition, and the Russians used cement for repairing the battleship *Sebastopol* during their recent war with Japan. That vessel was rammed by the *Peresviet*, another Russian warship, and a leak of some length was repaired with cement. Later the vessel was struck with torpedoes, but not seriously damaged,—a fact that led to the French experiments with cement.

BRAZIL

TORPEDO-BOAT DESTROYER *AMAZONAS* LAUNCHED

Rapid progress is being made with the series of ten new torpedo-boat destroyers that are being built by Messrs. Yarrow and Company for the Brazilian government. Three are already in the water, the third having been successfully launched at the company's new works at Scoutstoun, on the Clyde, Saturday, November 21, under the name of *Amazonas*, the naming ceremony having been performed by Senhora Gomes Ferraz, wife of Captain Ferraz of the Brazilian Navy. The *Amazonas* is fitted with two sets of triple-expansion, four-cylinder engines, balanced on the Yarrow-Schlick-Tweedy system, supplied with steam from two double-ended Yarrow boilers, each capable of 4000 horse-power. The first of this series of destroyers, the *Para*, was launched July 14, 1908, and in her preliminary steaming trials on the Clyde she attained a speed of 27.25 knots. The second, the *Paiuhy*, was launched September 7, 1908, and is now completing her trials. This leaves the other seven destroyers of the series in hand at the Yarrow works. Several of them are in advanced stage and will soon be launched.

These ten destroyers will be a valuable addition to the Brazilian Navy. They are alike in type and size, their length being 240 feet, beam 23 feet 6 inches, and displacement 700 tons,—larger than the British "River" class of destroyers which they resemble very closely, but not quite as large as the ten new destroyers of the *Paulding* type just contracted for by the United States government under the Naval Act of 1908. These Brazilian destroyers are being fitted with Marconi wireless telegraph installation and with refrigerating apparatus for their magazines.

AUSTRO-HUNGARY

NEW AUSTRIAN FLOATING DOCK

The fact that Austria is undertaking the construction of a new floating drydock capable of raising a ship of 20,000 tons displacement would seem to indicate that she expects to lay down vessels of greater displacement than those of the *Radezky* class. This dock is to be stationed in the naval harbor of Pola, and has been designed by the British firm that, six years ago, built the dock in England for the Austrian Government, which has been operated successfully. The new dock is intended primarily for docking vessels of 18,000 tons displacement; it will be able to do this in four hours. However, it is to be built to accommodate ships up to 20,000 tons, docking them in a correspondingly longer period. The over-all length of the dock is to be 480 feet; breadth, 140 feet; total height, 62 feet. When docking 18,000-ton ships, the dock is to be submerged 48 feet 10 inches; while for 20,000-ton vessels it must be submerged 50 feet 6 inches. The amount of water to be expelled when raising 18,000-ton and 20,000-ton ships is, respectively, 29,170 and 31,350 tons, and it is proposed to use eight vertical steam-driven, centrifugal pumps for that purpose.

SCOUT AND MOSQUITO CRAFT

The Austro-Hungarian Government is building a scout of 3500 tons, of special type and a designed speed of 26½ knots, which was laid down last summer under the name of the *Admiral Spaun*. It is to be 425 feet long and 42 feet beam. The Government is completing six destroyers of the *Huszar* class, which have received the names, *Turul*, *Csikós*, *Pandur*, *Reka*, *Velebit*, and *Dinara*. The names given to the ten new torpedo boats are the *Triton*, *Hydra*, *Skorpion*, *Phoenix*, *Krake*, *Polyph*, *Echse*, *Molch*, *Kormoran*, and *Alk*.

THE NAVY LEAGUE OF THE UNITED STATES

President: GENERAL HORACE PORTER
Vice-President: HON. WILLIAM MCADOO
Treasurer: CLINTON E. BRAINE
 Rooms 48, 18 West 34th St., New York, N. Y.

Secretary: HENRY H. WARD
 1308 I St. N. W., Washington, D. C.
Recorder: ROBERT S. SLOANE
Counsel: HERBERT L. SATTERLEE

PROGRAM OF THE LEAGUE

A small twelve-page booklet, on the present plans of the Navy League and its program for 1909, in connection with the Admiral Evans Lectures and other methods of publicity, has been prepared and is ready for issue to League members. The following paragraphs are quoted from the pamphlet:—

"President Roosevelt said, on February 22, 1907, in addressing the convention of the Navy League, in Washington: 'The navy has no one to speak for it save those who speak for it because of their devotion to the honor and interest of the United States; and I ask that you and those like you make your voices heard for the general welfare amid the din of voices that speak only for special interests.'"

"The Navy League has no proposals for a great increase in the cost of the navy. It does not suggest that we should have the biggest navy on earth. It emphatically disapproves 'jingoism' in relation to other nations, or going about with a chip on our shoulder."

"War is costly. In 1865 it was costing our government four millions of dollars per day to carry on the war, and a modern war between great nations would prove far more expensive. A strong and efficient navy affords cheap insurance against the mere material cost of war, not to speak of the frightful sacrifice of human life."

"Thousands of boys and young men are entering our navy every year to learn a useful trade, for it requires machinists, electricians, firemen, engineers and other mechanics as well as seamen to run a battleship. A trained man is an asset to a nation, and it is by no means an unmixed evil for a man to fail to re-enlist. The nation has almost unconsciously developed the biggest and best trade school in the country within its navy."

"Plans are on foot to enable the various sections of the Navy League to furnish at slight cost stereopticon lectures in our public schools on 'The Navy in Our Country's History.' This is a definite line of work which should be undertaken systematically by every section in the country."

It is requested that those desiring any quantity of these pamphlets apply to the Secretary for them.

A later edition of this pamphlet will be published in somewhat more extended form, as soon as the Navy Department plans for reorganization of the Department are fully developed. It is understood that these plans will not involve the necessity of immediate legislative action, except in certain details. But it will interest League members to know what the Department wishes to accomplish in the way of reorganization, and an intelligent under-

standing of the situation will give League members an opportunity to do their part in urging Congress to enact such legislation as the Department may recommend for the good of the navy. It is well to bear in mind that this scheme of reorganization, when it is put forth, represents the ideas of the one man in the country who, by ability and experience, is perhaps best able to draw up a plan of reorganization. In fact, it is doubtful if there has been in the Navy Department, since Mr. Long's retirement, a Secretary who could have successfully initiated a working scheme of reorganization in the comparatively short time during which he was in office. This statement is made in full recognition of the great personal ability of Mr. Newberry's predecessors. The trouble was in each case that about the time the Secretary began to become acquainted with the details of departmental administration, he either withdrew from official life or took some other position under the government.

Mr. Newberry's full program, with comment thereon, will be published in the January issue of THE NAVY.

NAVY LEAGUE CONVENTION AND REVIEW OF THE FLEET

Notice will shortly be sent to all Sections advising them of the tentative arrangements for the Annual Convention and dinner. It has practically been decided to hold the Convention in Washington on February 20, and it is possible that the dinner, which will probably be held the same evening, will be given in connection with the dinner of the Naval Militia Association, which is to be held in Washington on that day.

This year's Convention will present many important matters for consideration. The Navy League has undertaken a greater activity along various lines than it has attempted heretofore. The delegates of the Sections should be fully advised of these plans and should come to the Convention prepared to recommend other lines of activity and methods for carrying on the present work.

It has been suggested in certain sources that the League would grow faster, would be a more efficient and compact organization, if the plan which has heretofore been followed of forming Sections throughout the country, a Section consisting of members of the League living in the same general locality, should be subordinated to an attempt to recruit League membership directly through the National Section. No change would necessarily be made in the status of existing Sections, but no particular effort would be made to form new Sections in localities where persons interested in League work would be just

as willing to join the National Section. In places where four or five members could be found who would be willing to take an active interest and *do things* for the League, it has been suggested that they be treated as a committee for that locality; and, while relieved of the detail of keeping up membership rolls, communicating with members in their locality, collecting dues, etc., that they be called upon by headquarters when there is some particular definite thing to be done in the town or city in which they live. This plan, by relieving the local Sections of these details of the matter of keeping up membership rolls and circulating information, and providing other methods of information and publicity for the League, would largely increase the work of headquarters, but would justify the employment of such paid secretaries and other assistants as would economically produce the information upon which the life of the League depends. Under the present plan the Sections are looked to for much of this work; and the total amount spent in this way and the amount of energy used by individuals would in the aggregate, if the working were at all efficient, be much more than working through a central bureau, while methods would not be apt to be as effective or the weight of League influence as centralized.

Chairmen and officers of Sections are reminded that in accordance with Article X of the Constitution, each Section should designate as many delegates to the Convention as it wishes to have as representatives. In the event that delegates are not sent, a proxy who will be present should be appointed.

The nominating committee appointed to nominate directors, to fill the existing vacancy in the board, and vacancies for the year ending March 30, 1910, are as follows: Miss C. Van Brunt, J. S. Rossell, W. S. Lloyd, H. B. Kane, and E. K. Roden.

A written notice will be sent to chairmen of Sections requesting them to notify the Secretary of the League not later than February 8 of the number of members in each Section who would wish to take places on a steamer that it is intended to charter for the purpose of viewing the Atlantic fleet on its arrival at Hampton Roads about February 22. Members may bring their families or friends. The cost for each person for accommodation on this steamer will not exceed \$5.00. If a sufficient number of responses are received by February 8, it is the purpose of the directors to charter a steamer. Certain Sections have indicated their intention of using surplus funds in their treasuries to meet part of the expenses of their delegates, should this arrangement be made, charging each individual member only such amount as is needed to make up the \$5.00. The plan as to chartering the steamer cannot be definitely settled until returns are in from the Sections.

LEAGUE NOTES

The Board of Directors, at a meeting on December 30, adopted an insignia for the use of members. A die of this has been prepared by Bailey, Banks & Biddle, and for the time being it will be supplied by them on orders given by the Secretary. The Directors will later establish the conditions under which it will be issued. The price of the insignia is \$16.00.

Mr. Arthur H. Dadmun, at a meeting of the Board of Directors held on December 30, was elected Field Secretary of the League.

Through the efforts of the directors a special fund is being raised by subscription to defray the expenses incident to Mr. Braine's and Mr. Dadmun's traveling with Admiral Evans.

At a meeting of the Board of Directors, on December 30, Mr. H. L. Satterlee, former director of the League, who has accepted the appointment of Assistant Secretary of the Navy, tendered his resignation, and it was accepted with the deep regret of the Board, after an expression of thanks for the services which Mr. Satterlee had rendered as a director. Mr. Satterlee continues as counsel of the League.

At a meeting of the Board on December 30, a special committee of "Plan and Scope" was appointed to develop and carry out new methods of League activity.

At a meeting of the Board of Directors of the Navy League, held on January 14, 1909, a motion was adopted recommending that the statues of John Paul Jones and John Barry to be placed in Washington be not put in the same square, as has been suggested in certain quarters, but that a separate site be provided for each one of these statues. The resolution stated the sense of the members that each of these heroes was of sufficient distinction to deserve a separate and distinct location for his statue, and that it should be a public square to be named after him. The resolution goes on to say that to give each a distinct location would please the admirers of both, while to place both in the same square would be resented by the admirers of both.

ADMIRAL EVANS' LECTURES

As previously announced in these columns, Admiral Evans spoke at Carnegie Hall, New York, January 8, under the auspices of the Navy League, his subject being, "From Hampton Roads to San Francisco in Command of the Atlantic Fleet." On January 18 he spoke on the same subject under the auspices of the Nicholas Biddle Section of the League, at the Academy of Music in Philadelphia. In the meantime he has given other addresses. His itinerary for the remainder of the tour as now determined is as follows:—

January 29 — Cincinnati, Ohio (Music Hall).
 February 3 — Detroit, Mich. (Light Grand Army).
 February 6 — Saginaw, Mich.
 February 9 — Milwaukee, Wis. (Pabst Theatre).
 February 11 — Des Moines, Iowa (The Auditorium).
 February 16 — Chicago, Ill. (Orchestra Hall).
 February 22 — Minneapolis, Minn.
 February 25 — St. Paul, Minn. (Auditorium).

The New York Sun of January 9, referring to Admiral Evans' appearance at Carnegie Hall, said:—

"Rear Admiral Robley D. Evans, Retired, sat in a chair on the stage at Carnegie Hall last night with his crutches beside him and spun a plain sailor's yarn of the fleet that set out more than a year ago for the epigrammatical fight or frolic and found only the latter. . . . His yarn, minus any flowers of rhetoric and tendrils of sentiment, was just the plain story of Robley D. Evans, his work completed."

Previous to Admiral Evans' appearance before the audience in the hall he was received in an anteroom by the officers of the League, committees and delegates from Sections at Philadelphia, Scranton, Bristol (Tenn.), Wilmington (Del.), the local Sections of New York City, and a distinguished company of naval officers, officers of the State militia, and gentlemen of prominence in New York City and State. A company of the Naval Reserve, under command of Lieut. Russell Rainer, acted as an escort. Admiral Evans' coming on the platform was announced by a bugler detailed from the Naval Reserve detachment.

The speaker appeared in the evening dress of a civilian; for, although all of his lectures—"talks," as he prefers to call them—on his present tour are to be delivered in the interest of the Navy League (whatever the local auspices may be), and although on this basis he is doing an important work for the navy itself, he prefers to consider himself as not on duty and does not wear uniform.

Admiral Evans was introduced by General Porter, President of the League. The Admiral, who appeared on the stage on crutches, in opening his remarks, said:—

"I have a few reminders of the civil war always with me, and they are with me more strongly as time goes on. They are sufficiently prompting to remind me that if I should stand at all it must be on my head, so you will pardon me if I give my little talk sitting down."

From the time of the beginning of his address until the close the speaker held the audience during his narrative of an hour and three quarters. It is a matter of a great deal of pride to those who have been associated with him in the navy and knew him as a distinguished naval officer, that he can turn his hand so readily and successfully to this new form of effort for the navy. His voice was strong and clear and carried perfectly to every part of the large hall, and his intimate and easy manner soon put his audience in full sympathy with him,

and they responded successively to his repeated sallies of dry humor, his enthusiastic praise of the personnel of the service, and his references to the more pathetic side of his experiences. Among other things, he said:—

"When I got the tip early in the summer of 1900 that the fleet was to go I was ordered to go to Oyster Bay and see the President. I went in a hurry, naturally, for it was the President who called.

"Now, the President did not say, 'Evans, can you take the fleet to San Francisco?' He never asked me anything about that. All he said was, 'Evans, you will take the fleet to San Francisco.' I've often been asked why the fleet went there. I don't know. I'm glad I did not know for if I had and had told anybody I might have been elected a member of a justly famous club which I have no desire to join at my age. . . .

"I never thought for a minute that there was the slightest probability of war with Japan. They want the friendship of every nation under the sun except perhaps that of the bear that goes scratching around up in the northwest corner of the world. The President was right to send the fleet; he had the right. The President of this country who does not dare to send the fleet anywhere he wants in American territory is not worthy to be President."

On the 18th of January Admiral Evans spoke in Philadelphia, the arrangements made there for the lecture being most complete in every way. There was hardly a vacant seat in the large hall. Admiral Evans again put himself in full sympathy with the audience.

Arrangements in Philadelphia were carried out by Mr. William S. Lloyd and Dr. John W. Croskey, chairman and treasurer, respectively, of the Nicholas Biddle Section. The immediate tangible result of the lecture, so far as the League is concerned, is a large increase in the membership of the Nicholas Biddle Section. The intangible, but none the less valuable, result to the League of this lecture, as well as of the others, is the spreading of interest among the public at large as to naval matters.

The lecture was given for the financial benefit of the Naval Branch of the Young Men's Christian Association at Philadelphia, and a substantial addition was made to the fund that the Nicholas Biddle Section now is particularly interested in building up.

In connection with Admiral Evans' tour, the League has arranged to be represented at the several cities in which he speaks by Mr. Clinton E. Braine, Treasurer of the League, and by Mr. Arthur H. Dadmun, recently elected Field Secretary of the League. Mr. Dadmun has had years of experience in association work, and in connection with Mr. Braine will systematically undertake to increase League membership and to spread information as to the League in the cities that they visit. Mr. Braine and Mr. Dadmun will act also as personal representatives of Admiral Evans. Mr. Braine will accompany him and Mr. Dadmun will usually precede him.

VESSELS OF THE NAVY IN COMMISSION

WHERE STATIONED JANUARY 28, 1900

*Ships marked * should be addressed in care of Postmaster, New York; ships marked † should be addressed in care of Postmaster, San Francisco, California*

Abarenda *	Negro Bay, Morocco	Milwaukee	Bremerton, Wash.
Ajax *	Algiers, Algeria	Minnesota *	Villefranche, France
Alabama	Navy Yard, New York	Mississippi *	Habana, Cuba
Albany †	San Diego, Cal.	Missouri *	En route Negro Bay, Morocco
Alexander *	Manila, P. I.	Mohican †	Olongapo, P. I.
Alliance *	Culebra, West Indies	Monckton †	Olongapo, P. I.
Annapolis †	Tutuila, Samoa	Montana *	En route Colon, R. of P.
Arethusa	Navy Yard, Mare Island, Cal.	Monterey †	Olongapo, P. I.
Arkansas	Norfolk, Va.	Montgomery	Philadelphia, Pa.
Atlanta	Charleston, S. C.	Morris	Newport, R. I.
Bagley	Annapolis, Md.	Nanshan †	Guam, M. I.
Bainbridge †	Cavite, P. I.	Nebraska *	En route Tangier, Morocco
Barry †	En route Habana, Cuba	Nero *	Baltimore, Md.
Birmingham *	Colon, R. of P.	Nevada	Norfolk, Va.
Brutus †	Honolulu	Newark *	Guantanamo Bay, Cuba
Buffalo †	Norfolk, Va.	New Hampshire *	Navy Yard, New York
Caesar	Shanghai, China	New Jersey *	Marseilles, France
California *	En route Callao, Peru	Nine	Norfolk, Va.
Callao †	Norfolk, Va.	North Carolina *	En route Colon, R. of P.
Castine	Messina, Sicily	Octopus *	Norfolk, Va.
Celtic *	Manila, P. I.	Ohio *	En route Negro Bay, Morocco
Charleston †	Manila, P. I.	Olympia	Norfolk, Va.
Chattanooga †	Manila, P. I.	Osceola *	Mobile, Ala.
Chauncey †	Cavite, P. I.	Paducah *	Portsmouth, N. H.
Chester *	Navy Yard, New York	Panther *	Algiers, Algeria
Cheyenne †	San Diego, Cal.	Paul Jones †	San Diego, Cal.
Chicago	Norfolk, Va.	Pennsylvania *	En route Callao, Peru
Cleveland †	Manila, P. I.	Pensacola	Training Station, San Francisco, Cal.
Colorado *	En route Callao, Peru	Peoria †	San Juan, Porto Rico
Concord †	Guam, M. I.	Perry †	San Diego, Cal.
Connecticut *	Villefranche, France	Philadelphia	Bremerton, Wash.
Constitution	Newport, R. I.	Pike	Mare Island, Cal.
Culgoa *	En route, Marseilles, France	Piscataqua †	Olongapo, P. I.
Cuttlefish	Norfolk, Va.	Pompey †	Manila, P. I.
Dale †	Cavite, P. I.	Potomac	Charleston, S. C.
Davis †	San Diego, Cal.	Prairie *	En route New York
Decatur †	Cavite, P. I.	Preble †	San Diego, Cal.
DeLong *	Pensacola, Fla.	Rainbow *	Olongapo, P. I.
Denver †	Manila, P. I.	Relief †	Olongapo, P. I.
Des Moines *	Curacao, West Indies	Rhode Island *	Marseilles, France
Dolphin *	La Guaira, Venezuela	Rowan †	Mare Island, Cal.
Dubuque *	Bluefields, Nicaragua	Salem *	Charleston, S. C.
Eagle *	Surveying in Haitian waters	Samar †	Hongkong, China
Farragut †	San Diego, Cal.	Saturn †	En route San Diego, Cal.
Franklin	Norfolk, Va.	Scorpion *	Constantinople, Turkey
Galveston †	Manila, P. I.	Severn	Norfolk, Va.
Georgia *	Marseilles, France	Solace *	Punta Arenas, Chile
Glacier *	Callao, Peru	South Dakota †	En route Callao, Peru
Goldsbrough †	San Diego, Cal.	Southerly	Portsmouth, N. H. (prison ship)
Grampus	Mare Island, Cal.	Sterling †	Guantanamo Bay, Cuba
Hancock	Navy Yard, New York	Stewart †	San Diego, Cal.
Hannibal *	En route Philadelphia, Pa.	St. Louis	Bremerton, Wash.
Hartford	Norfolk, Va.	Supply †	En route Bremerton, Wash.
Helena †	Hongkong, China	Sylph	Washington, D. C.
Hiet *	Surveying in Cuban waters	Tacoma	San Juan, Porto Rico
Hopkins	Mare Island, Cal. (in reserve)	Tarantula	Norfolk, Va.
Hull †	Mare Island, Cal.	Tennessee *	En route Callao, Peru
Idaho *	Philadelphia, Pa.	Texas	Charleston, S. C.
Illinois *	Algiers, Algeria	Thornton *	Pensacola, Fla.
Independence	Mare Island, Cal.	Tingey *	Pensacola, Fla.
Indiana	Philadelphia, Pa. (in reserve)	Truxton †	San Diego, Cal.
Iris †	Guam, M. I.	Uncas *	Guantanamo Bay, Cuba
Iroquois †	Honolulu, Hawaii	Vermont *	Villefranche, France
Justin *	Panama, R. of P.	Villalobos †	Hankow, China
Kansas	Villefranche, France	Viper *	Norfolk, Va.
Kearsarge *	Algiers, Algeria	Virginia *	En route Negro Bay, Morocco
Kentucky	Tripoli, Tripoli	Wabash	Boston, Mass.
Lancaster	Philadelphia, Pa.	Washington *	En route Callao, Peru
Lawrence †	San Diego, Cal.	West Virginia *	En route Callao, Peru
Lebanon *	Buzzards Bay, Morocco	Whipple †	Mare Island, Cal.
Louisiana	En route Negro Bay, Morocco	Wilkes	Pensacola, Fla.
Macdonough *	Pensacola, Fla.	Wilmington †	Shanghai, China
Maine *	Habana, Cuba	Wisconsin *	Algiers, Algeria
Manly	Annapolis, Md.	Wolverine	Eric, Pa.
Marietta *	Portsmouth, N. H.	Wompatuck †	Olongapo, P. I.
Maryland	En route Callao, Peru	Yankton *	Villefranche, France
Mayflower	Navy Yard, Washington	Yorktown *	Callao, Peru

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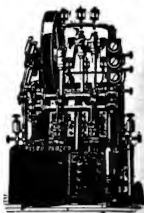
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